TECHNICAL INFORMATION
S 2xx, S 3xx and S 4xx Canister Vacuums

© 2012 Miele USA

Table of Contents

1.0 Construction and Design 7
1.1 General Information 7
1.2 Cleaning and Care 7
1.2.1 Vacuums and Accessories 7
1.2.2 Dust Compartment 7
1.1 Type/Construction 12
1.1.1 S 3xx Components 12
1.1.2 S 4xx Components 14
1.2 Features 15
1.3 Technical Data 18
1.3.1 S 247i - S 256i 18
1.3.2 S 269i - S 282i 18
1.3.3 S 3xx 19
1.3.4 S 4xx 19
1.4 Accessories 20
1.4.1 Standard Accessories 20
1.4.2 Optional Accessories 20
1.4.3 Accessories with New Locking System (S 2xx Only) 20
1.5 Electrobrush Plug System (S 3xx and S 4xx Only) 21
4.0 Description of Function 21
4.1 Air Clean Plus Filter System 21
4.1.1 Super Air Clean Filter 21
4.1.2 Active Air Clean Filter 22
4.1.3 S-Class Filter 22
4.2 Dustbag Change Indicator 22
4.2.1 S 27x 22
4.2.2 S 3xx 23
4.2.3 S 4xx 24
4.3 Suction Power 24
4.4 Power Regulation 25
4.4.1 Models with Manual Power Selection 25
4.4.2 Automatic Models 25
4.4.3 Booster Setting 26
4.4.4 Phase-Chopping Control - Principle of Operation 27
5.0 Service and Maintenance 27
5.1 Dustbag Compartment Lid (and Hinges, if Applicable) 28
5.1.1 S 25x 28
5.1.2 S 27x 28
5.1.3 S 3xx 28
5.1.4 S 4xx 28
5.2 Accessory Compartment Lid 29
5.2.1 Reassembly (S 2xx Only) 29
5.3 Dustbag Holder 29
5.3.1 S 25x 29
5.3.2 S 27x 29
5.3.3 S 3xx 30
5.3.4 S 4xx 30
5.4 Dust Channel 31
5.4.1 S 25x 31

5.4.2 S 27x 31
5.4.3 S 3xx and S 4xx 31
5.5 Dustbag Change Indicator 31
5.5.1 S 25x 31
5.5.2 S 27x 31
5.5.3 S 3xx 32
5.5.4 S 4xx 32
5.6 Cap Assembly 32
5.6.1 S 25x 32
5.6.2 S 27x 32
5.6.3 S 3xx 33
5.6.4 S 4xx 33
5.7 Rear Casing 34
5.7.1 S 25x 34
5.7.2 S 27x 34
5.7.3 S 3xx 34
5.7.4 S 4xx 35
5.8 Foot Switches 36
5.8.1 S 25x and S 27x 36
5.8.2 S 3xx 36
5.8.3 S 4xx 36
5.9 Potentiometer/Suction Power Selector 37
5.9.1 S 2xx 37
5.9.2 S 3xx 38
5.9.3 S 4xx 40
5.10 Electronic (S 4xx Only) 42
5.11 Fault/Overheat Indicator Lamp 43
5.11.1 S 2xx 43
5.11.2 S 4xx 43
5.12 Plug Housing 43
5.12.1 S 25x 43
5.12.2 S 27x 44
5.13 On/Off Switch 44
5.13.1 S 25x 44
5.13.2 S 27x 44
5.13.3 S 3xx 44
5.14 Flush Socket Outlet 44
5.14.1 S 25x 44
5.14.2 S 27x 44
5.15 Sensor (Automatic Models S 280i - S 282i) 45
5.16 Cord Reel 45
5.16.1 S 23x 45
5.16.2 S 25x 45
5.16.3 S 27x 46
5.16.4 S 3xx 46
5.16.5 S 4xx 46
5.17 Power Cord 47
5.17.1 S 27x 47
5.17.2 S 3xx 47
5.18 Motor Assembly 48
5.18.1 S 25x 48
5.18.2 S 27x 49
5.18.3 S 3xx 50
5.18.4 S 4xx 50

Technical Information
5.19 Motor Electronic (Speed Control Board) 51
5.19.1 S 3xx 51
5.19.2 S 4xx 51
5.20 Motor Brushes 51
5.20.1 S 3xx 51
5.20.2 S 4xx 51
5.21 Electric Brush Socket (S 254i and S 255i Only) 52
5.22 Suction Hose with Integrated Wiring (S 2xx Only) 52
5.22.1 S 254i and S 255i 52
5.22.2 S 270i - S 276i, S 280i 52
5.22.3 S 278i 53
5.23 Turbo Brush (S 2xx Only) 53
5.24 Buffer/Bumper Strip (S 3xx and S 4xx Only) 54
5.24.1 S 3xx 54
5.24.2 S 4xx 55
5.25 Grill for HEPA Filter (S 3xx Only) 55
6.0 Fault Diagnosis 56
6.1 Improved Castor (S 2xx Only) 56
6.2 Dirty Dustbag Compartment (S 27x and S 28x Only) 56
6.2.1 Dustbags, Old and New Versions 56
6.2.2 Modified Dustbag Holder 57
6.3 Poor Suction Performance (S 27x and S 28x) 58
6.5 Poor Blower Performance (S 27x and S 28x) 59
6.6 Dustbag Change Indicator (S 3xx) 59
6.7 Suction Power (S 3xx) 60
6.8 Motor Does Not Operate (S 345i and S 445i) 60

List of Figures

Figure 1-1: S 247i, S 248i 8
Figure 1-2: S 249i, S 250i 8
Figure 1-3: S 251i, S 252i 8
Figure 1-4: S 254i 8
Figure 1-5: S 255i, S 256i 8
Figure 1-6: S 234i 9
Figure 1-7: S 269i, S 270i 9
Figure 1-8: S 271i, S 272i 9
Figure 1-9: S 274i 9
Figure 1-10: S 275i, S 276i 9
Figure 1-11: S 278i 9
Figure 1-12: S 280i, S 282i 10
Figure 1-13: S 300i, S 301i 10
Figure 1-14: S 310i, S 313i 10
Figure 1-15: S 321i, S 324i, S326i 10
Figure 1-16: S 334i, S 336i, S 338i 10
Figure 1-17: S 342i 11
Figure 1-18: S 344i 11
Figure 1-19: S 346i, S 347i, S 348i 11
Figure 1-20: S 400i, S 401i, S 402i, S 408i 11
Figure 1-21: S 410i 11

Figure 1-22: S 421i, S 422i, S 424i, S 426i 11
Figure 1-23: S 434i, S 436i, S 438i 12
Figure 1-24: S 442i 12
Figure 1-25: S 444i 12
Figure 1-26: S 446i, S 447i, S 448i 12
Figure 1-27: S 3xx Components 13
Figure 1-28: S 4xx Components 14
Figure 1-29: 9.3cm Adapter Sleeve to Connect New and Old Accessories 20
Figure 1-30: 9.3cm Swivel Adapter Sleeve to Connect the Locking Electric Brush 20
Figure 1-31: 20cm Swivel Adapter Sleeve to Connect Lockable Accessories 21
Figure 4-1: S 3xx Dustbag Change Indicator 23
Figure 4-2: S 4xx Dustbag Change Indicator 24
Figure 4-3: Suction Power Curve 24
Figure 4-4: Phase-Chopping Control 27
Figure 5-1: Dustbag Compartment Lid, S 4xx 28
Figure 5-2: Accessory Compartment Lid, Hinges and Springs (S 2xx Shown) 29
Figure 5-3: Dustbag Holder, S 25x 29
Figure 5-4: Dustbag Holder, S 27x 30
Figure 5-5: Dustbag Holder, S 3xx 30
Figure 5-6: S 3xx and S 4xx Dust Channel 31
Figure 5-7: S 25x Cap Assembly 32
Figure 5-8: S 27x Rear Casing 33
Figure 5-9: Cap Assembly, S 4xx 33
Figure 5-10: Rear Casing, S 25x 34
Figure 5-11: Rear Casing, S 27x 34
Figure 5-12: Rear Casing, S 3xx 35
Figure 5-13: Rear Casing, S 4xx 35
Figure 5-14: Foot Switches, S 25x and S 27x 36
Figure 5-15: Foot Switch, S 3xx 36
Figure 5-16: Foot Switch, S 4xx 37
Figure 5-17: Potentiometer Cover, S 2x4i and S 2x5i 38
Figure 5-18: Catches on Potentiometer Control, S 2x4i and S 2x5i 38
Figure 5-19: Potentiometer Control, S 2x4i and S 2x5i 38
Figure 5-20: Rotary Potentiometer, S 3xx 39
Figure 5-21: Slide Potentiometer, S 3xx 39
Figure 5-22: +/- Buttons, S 3xx 40
Figure 5-23: Electronic +/- Buttons, S 3xx 40
Figure 5-24: S 4xx Slide Potentiometer 41
Figure 5-25: Foot-Operated Power Selector, S 4xx 42
Figure 5-26: S 4xx Electronic Removal 43
Figure 5-27: S 27x Plug Housing 44
Figure 5-28: Sensor Removal for Models S 280i - S 282i 45
Figure 5-29: Cap Assembly with Lug, S 25x Models 46
Figure 5-30: Brake Lever Top Edge, S 25x Models 46
Figure 5-31: S 27x Power Cord Removal 47
Figure 5-32: S 3xx Power Cord Removal 47
Figure 5-33: S 25x Motor Assembly 48
Figure 5-34: S 27x Motor Assembly 49
Figure 5-35: S 4xx Motor with Holding Bracket 50
Figure 5-36: S 4xx Motor with Central Bearing 51

Technical Information

Figure 5-37: S 254i and S 255i Suction Hose with Integrated Wiring 52
Figure 5-38: S 270i - S 276i, S 280i Suction Hose with Integrated Wiring 53
Figure 5-39: S 278i Suction Hose with Integrated Wiring 53
Figure 5-40: S 2xx Turbo Brush 54
Figure 6-1: Modified Castor, S 2xx 56
Figure 6-2: Dustbag with Raised Rim on Collar, S 27x and S 28x 57
Figure 6-3: Dustbag without Raised Rim on Collar, S 27x and S 28x 57
Figure 6-4: Modified Dustbag Holder, S 27x and S 28x 58
Figure 6-5: S 27x and S 28x Motor Seal and Holder 58
Figure 6-6: Blower Plate for S 27x and S 28x 59
Figure 6-7: S 3xx Dustbag Change Indicator 60

1.0 Construction and Design

1.1 General Information

- All repairs should be performed by a trained technician in strict accordance with national, state and local codes. Any repairs or maintenance performed by unqualified personnel could be dangerous.
- When servicing, modifying, testing or maintaining appliances, all applicable laws, regulations and accident prevention guidelines must be observed.
- All regulations of the appropriate utility supply companies and standards relating to safety (not limited to electrical safety) are to be complied with.
- Before any service work is started, the vacuum cleaner must be disconnected from the power supply.
- Even with the vacuum switched off, supply voltage may be applied to some components.
- Do not leave the vacuum unattended when it is plugged in. Turn off and unplug the vacuum before opening the cover.
- After work has been completed, a visual as well as an operational check should always be performed.

1.2 Cleaning and Care

1.2.1 Vacuums and Accessories

The vacuum cleaner and other plastic components can be cleaned using a damp cloth or a cleaner made especially for plastics.

Warning!
Do not use abrasive, glass or all-purpose cleaning solutions, as these can cause considerable damage to the plastic components of the vacuum or its accessories.

1.2.2 Dust Compartment

The dust compartment can be cleaned using another vacuum, if available, or a dry cloth or brush.

Monitor the bag change indicator and inspect all filters regularly. Replace them when necessary according to the maintenance instructions.

Technical Information

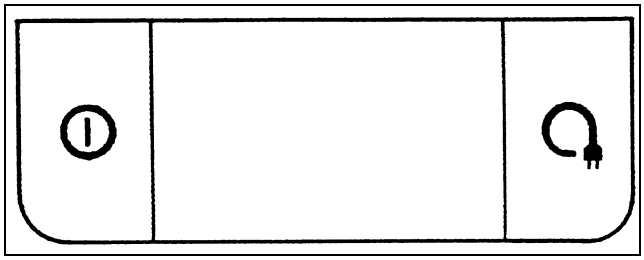


Figure 1-1: S 247i, S 248i

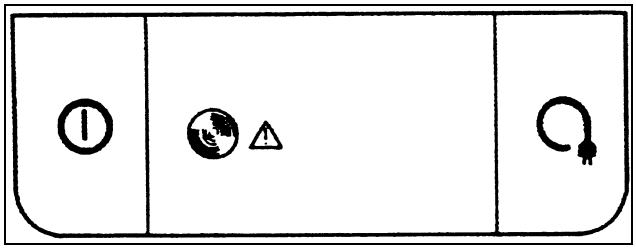


Figure 1-2: S 249i, S 250i

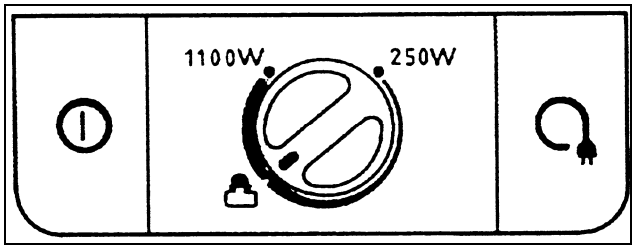


Figure 1-3: S 251i, S 252i

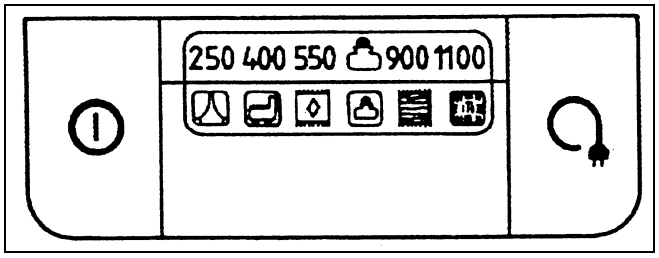


Figure 1-4: S 254i

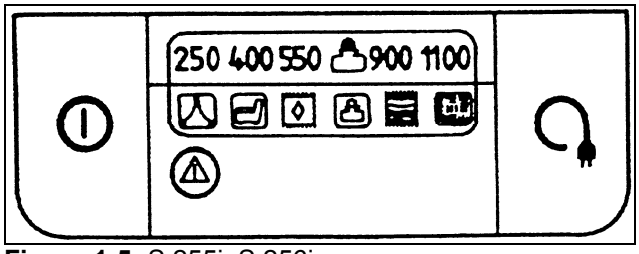


Figure 1-5: S 255i, S 256i

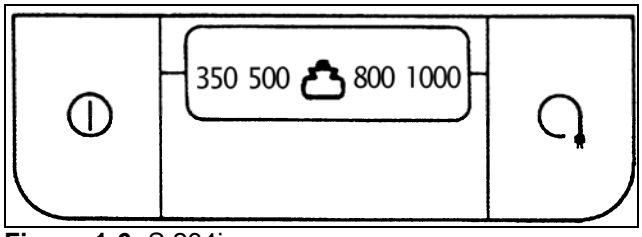


Figure 1-6: S 234i

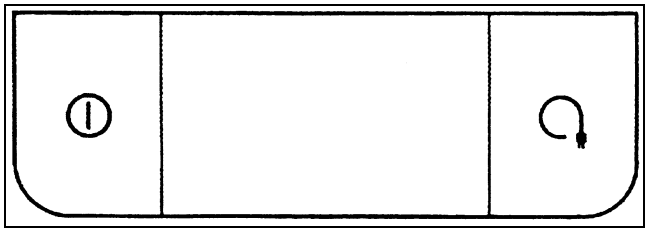


Figure 1-7: S 269i, S 270i

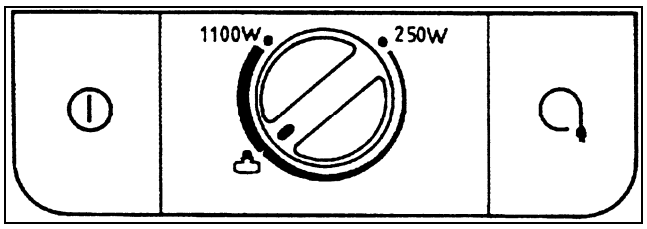


Figure 1-8: S 271i, S 272i

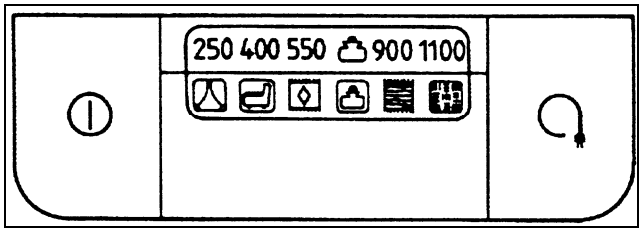


Figure 1-9: S 274i

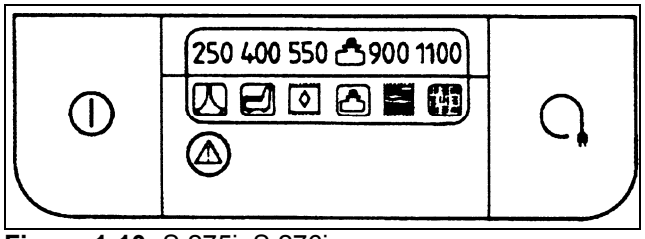


Figure 1-10: S 275i, S 276i

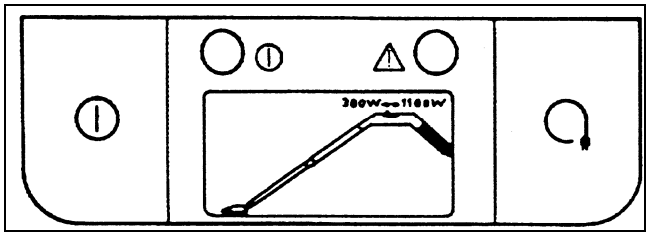


Figure 1-11: S 278i

Technical Information

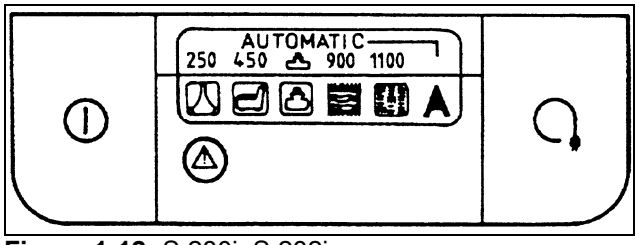


Figure 1-12: S 280i, S 282i

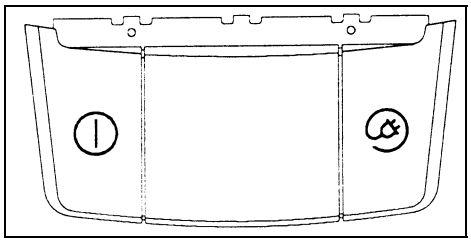


Figure 1-13: S 300i, S 301i

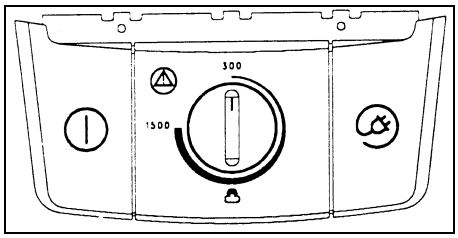


Figure 1-14: S 310i, S 313i

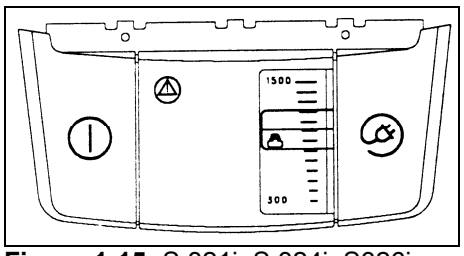


Figure 1-15: S 321i, S 324i, S326i

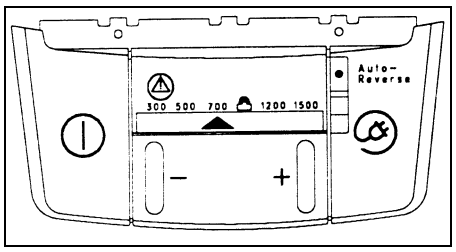


Figure 1-16: S 334i, S 336i, S 338i

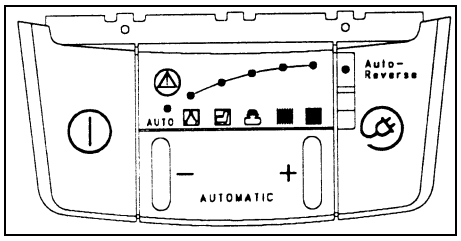


Figure 1-17: S 342i

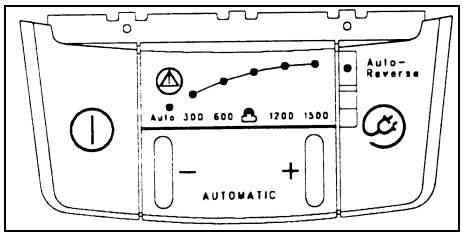


Figure 1-18: S 344i

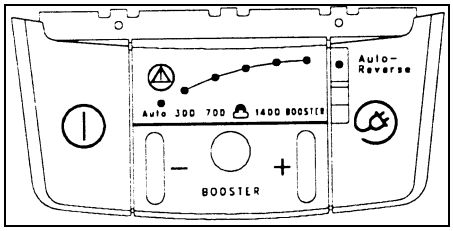


Figure 1-19: S 346i, S 347i, S 348i

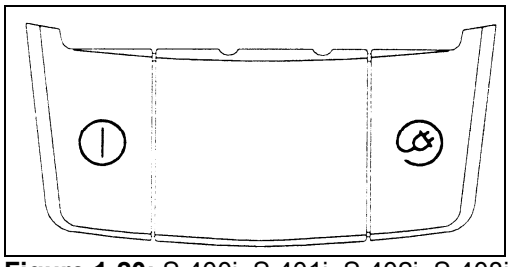


Figure 1-20: S 400i, S 401i, S 402i, S 408i

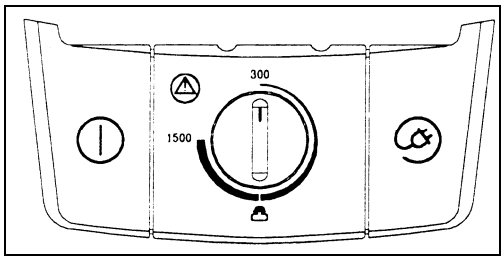


Figure 1-21: S 410i

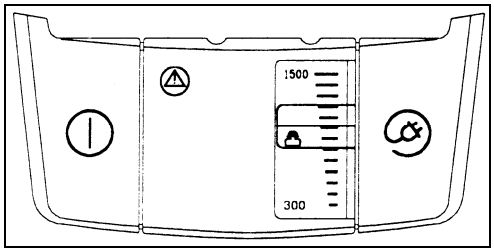


Figure 1-22: S 421i, S 422i, S 424i, S 426i

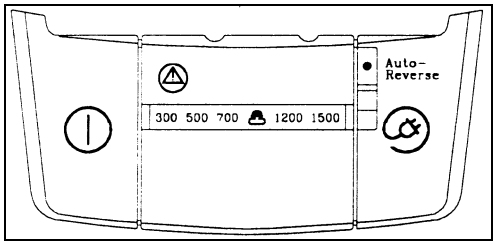


Figure 1-23: S 434i, S 436i, S 438i

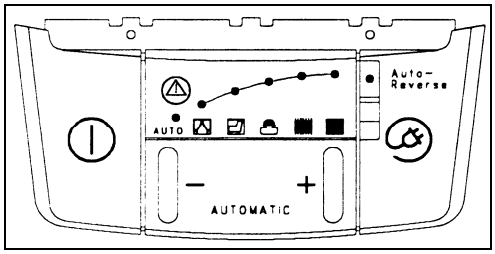


Figure 1-24: S 442i

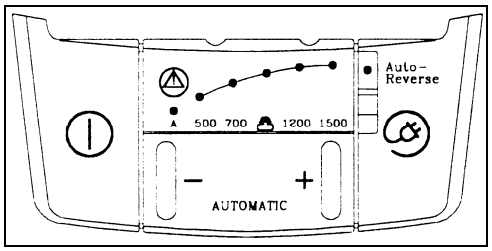


Figure 1-25: S 444i

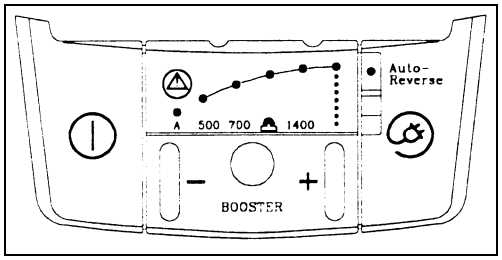


Figure 1-26: S 446i, S 447i, S 448i

1.1 Type/Construction

Canister vacuum cleaner.

1.1.1 S 3xx Components

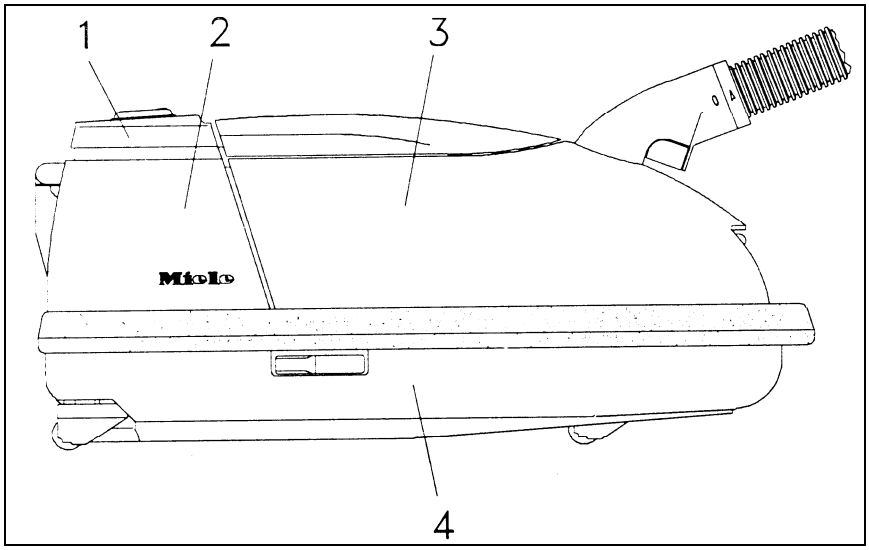


Figure 1-27: S 3xx Components

These vacuum cleaners consist of 4 main parts:

1) Switch unit
   - Suction power selector or electronic, depending on model
   - “On/Off” switch
   - Overheating warning light, depending on model
   - Group plug
2) Rear casing
   - Filter system
   - Cable rewind
   - Motor
   - Park System switch
   - Plug connectors
3) Dustbag compartment casing
   - Accessory compartment with lid
   - Suction hose connection with shutter
   - Dustbag change indicator
   - Accessories
   - Hinges
   - Slip-ring system for electrobrush, S 324i and S 346i only
4) Casing base
   - Motor protection filter
   - Dustbag holder
   - Bumper strip
   - Storage slot (for floor attachment)
   - Electrobrush socket, depending on model
   - 3 castors

Technical Information

1.1.2 S 4xx Components

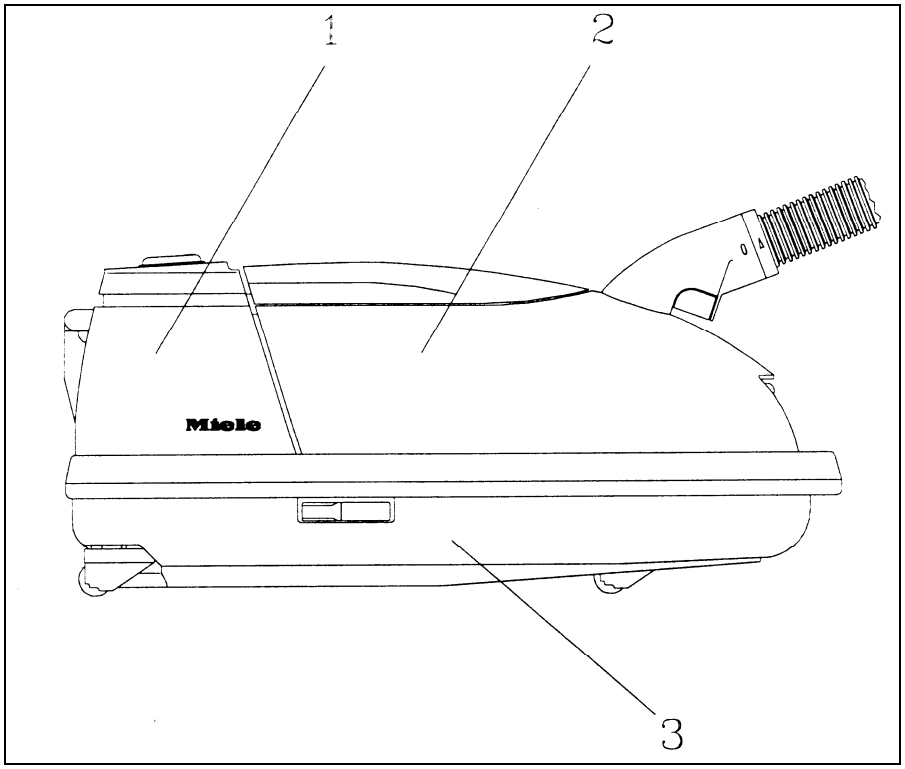


Figure 1-28: S 4xx Components

1) Integrated in rear casing
   - Foot switch unit
   - Suction power selector on top
   - Cable rewind
   - Motor
2) Integrated in dustbag compartment casing
   - Accessory compartment with lid
   - Dustbag change indicator
   - Suction hose connection

   With Automatic models
   - Connection stub for negative pressure hose
3) Integrated in housing base
   - Motor protection (matted filter)
   - Dustbag holder
   - Bumper strip
   - Electrobrush socket (depending on model)

   With Automatic models
   - Negative pressure switch

1.2 Features

Model	S 247i, S 248i	S 249i, S 250i	S 251i, S 252i	S 254i	S 255i, S 256i
Dustbag change indicator	x	x	x	x	x
Automatic cord rewind	x	x	x	x	x
Electric brush socket				x	x
Overheating indicator		x			x
Suction power selection					
Rotary knob			x		
Foot switch				x	x

Model	S 269i, S 270i	S 271i, S 272i	S 274i	S 275i, S 276i	S 278i	S 280i, S 282i
Dustbag change indicator	x	x	x	x	x	x
Automatic cord rewind	x	x	x	x	x	x
Electric brush socket			x	x	x	x
Overheating indicator				x	x	x
Suction power selection						
Rotary knob		x				
Foot switch			x	x		x
Handle of wired suction hose					x	
Automatic						x

Model	S 300i	S 301i	S 310i	S 313i	S 321i	S 324i	S 326i
Suction power regulation via air inlet valve	x	x	x	x	x	x	x
Rotary switch			x	x			
Slide switch					x	x	x
Telescopic suction tube		x			x	x	x
Universal floor attachment	SBD 304	SBD 404	SBD 304	SBD 304	SBD 304	SBD 304	SBD 304
Super Air Clean filter	x	x	x	x	x	x	o
Active Air Clean filter	o	o	o	o	o	o	x

Technical Information

Model	S 300i	S 301i	S 310i	S 313i	S 321i	S 324i	S 326i
S-Class filter	o	o	o	o	o	o	o
Auto-reverse cord rewind	o	o	o	o	o	o	o
Electrobrush socket						x	x
Overheating warning light			x	x	x	x	x
Blower connection	x	x	x	x	x	x	Separate
Radius of operation	10m	10m	10m	10m	10m	10m	10m
Dustbag capacity	4L	4L	4L	4L	4L	4L	4L
Fuse rating	10A, slow-trip switch						
Protection classification	Class II, double-insulated						

Model	S 334i	S 336i	S 338i	S 342i	S 344i	S 346i	S 347i	S 348i
Suction power regulation via air inlet valve	x	x	x	x	x	x	x	x
+/- buttons	x	x	x					
Fully electronic (+/- buttons)				x	x	x	x	x
AUTO setting				x	x	x	x	x
Booster function						x	x	x
Telescopic suction tube	x	x	x	x[1]	x	x	x	x
Universal floor attachment	SBD 304	SBD 304	SBD 304	SBD 304	SBD 264	SBD 264	SBD 264	SBD 264
Super Air Clean filter	x	o	o	o	x	o	o	o
Active Air Clean filter	o	x	o	x	o	x	x	o
S-Class filter	o		x	o	o	o	o	x
Auto-reverse cord rewind	x	x	x	x	x	x	x	x
Electrobrush socket	x	x	x	x	x	x	x	x
Overheating warning light	x	x	x	x	x	x	x	x
Blower connection	x	Separate	Separate	Separate	x	Separate	Separate	Separate
Radius of operation	10m	10m	10m	10m	10m	10m	10m	10m

Technical Information

Model	S 334i	S 336i	S 338i	S 342i	S 344i	S 346i	S 347i	S 348i
Dustbag capacity	4L	4L	4L	4L	4L	4L	4L	4L
Fuse rating	10A, slow-trip switch							
Protection classification	Class II, double-insulated							

Model	S 401i	S 408i	S 410i	S 421i	S 424i	S 426i	S 428i
Suction power regulation via air inlet valve	x	x	x	x	x	x	x
Rotary switch			x				
Slide switch				x	x	x	x
Telescopic suction tube		x		x	x	x	x
Super Air Clean filter	x		x	x	x		
Active Air Clean filter						x	
S-Class filter		x					x
Electrobrush socket					x	x	x
Overheating warning light			x	x	x	x	x
Blower connection	x	Separate	x	x	x	Separate	Separate
Radius of operation	10m	10m	10m	10m	10m	10m	10m

Model	S 434i	S 436i	S 438i	S 444i	S 446i	S 447i	S 448i
Suction power regulation via air inlet valve	x	x	x	x	x	x	x
Rocker switch	x	x	x				
Fully electronic (+/- buttons)				x	x	x	x
AUTO setting				x	x	x	x
Booster function					x	x	x
Telescopic suction tube	x	x	x	x	x	x	x
Super Air Clean filter	x			x			
Active Air Clean filter		x			x	x	
S-Class filter			x				x
Auto-reverse cord rewind	x	x	x	x	x	x	x
Electrobrush socket	x	x	x	x	x	x	x

Technical Information

Model	S 434i	S 436i	S 438i	S 444i	S 446i	S 447i	S 448i
Overheating warning light	x	x	x	x	x	x	x
Blower connection	x	Separate	Separate	x	Separate	Separate	Separate
Radius of operation	10m	10m	10m	10m	10m	10m	10m

x = Standard
o = Optional
[1] Stainless-steel telescopic suction tube

1.3 Technical Data

1.3.1 S 247i - S 256i

Suction pressure	240mbar
Throughflow rate	56 L/sec
Dustbag	Two-ply paper bag
Dustbag capacity	4L
Operational radius	9.5m
Weight including accessories	7.9kg
Electrical connection	220-230 V 50Hz
Fuse rating	10A, slow-trip switch
Safety classification	Doubly insulated
Test certificate	VDE interference suppression symbol
Noise level	74.5dBA

1.3.2 S 269i - S 282i

Suction pressure	240mbar
Throughflow rate	56 L/sec
Dustbag	Two-ply paper bag
Dustbag capacity	5.8L
Operational radius	9.7m
Weight including accessories	8.8kg
Electrical connection	220-230 V 50Hz
Fuse rating	10A, slow-trip switch
Safety classification	Doubly insulated
Test certificate	VDE interference suppression symbol
Noise level	74.5dBA

1.3.3 S 3xx

	S 3xx	Booster	Eco
Suction pressure	250mbar	275mbar	-
Throughflow rate	67 L/sec	72 L/sec	-
Dustbag capacity	4L		
Operational radius	10m		
Weight including accessories	8 - 9 kg, depending on model		
Electrical connection	230VAC 50Hz		
Fuse rating	10A, slow-trip switch		
Safety classification	Doubly insulated		
Test certificate	VDE interference suppression symbol		
Max. suction power	290W	320W	210W
Rated power	1200W/1500W	1200W/1600W	800W
Noise level	73dBA	73dBA	71.5dBA

1.3.4 S 4xx

	S 4xx	Booster
Suction pressure	260mbar	280mbar
Throughflow rate	63 L/sec	68 L/sec
Dustbag capacity	5.8L	
Operational radius	10m	
Electrical connection	230VAC 50Hz	
Fuse rating	10A, slow-trip switch	
Safety classification	Doubly insulated	
Test certificate	VDE interference suppression symbol	
Max. suction power	290W	330W
Rated power	1300W/1500W	1200W/1600W
Noise level	74.5dBA	

Technical Information

1.4 Accessories

1.4.1 Standard Accessories

	S 247i - S 256i	S 269i - S 282i	S 3xx	S 4xx
Telescopic suction tube w/locking system	depends on model	depends on model	Telescopic or sectioned	x
Suction hose	x	x	x	x
Floor attachment	x	x	x	x
Crevice nozzle	x	x	x	x
Upholstery nozzle	x	x	x	x
Dusting brush	x	x	x	x
Radiator brush				model-dependent
S-Class filter			model-dependent	model-dependent
Active Air Clean filter			model-dependent	model-dependent

1.4.2 Optional Accessories

S 247i - S 256i	Radiator brush, universal brush, large area floor attachment, floor brush for hard floor surfaces, cloth filter bag, electric brush S 017 with cable clips for standard suction hose for vacuum cleaner w/socket, electric brush S 019 and hose with integrated wiring for vacuum cleaners w/socket, turbo brush for all models
S 269i - S 282i	Radiator brush, universal brush, large area floor attachment, floor brush for hard floor surfaces, cloth filter bag, turbo brush for all models
S 3xx	See accessory catalog
S 4xx	Electrobrush SEB 0191, electrohose SES 105

1.4.3 Accessories with New Locking System (S 2xx Only)

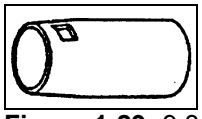


Figure 1-29: 9.3cm Adapter Sleeve to Connect New and Old Accessories

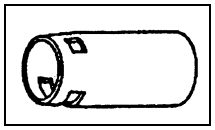


Figure 1-30: 9.3cm Swivel Adapter Sleeve to Connect the Locking Electric Brush

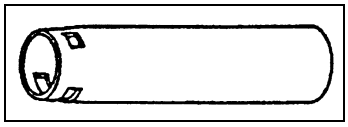


Figure 1-31: 20cm Swivel Adapter Sleeve to Connect Lockable Accessories

1.5 Electrobrush Plug System (S 3xx and S 4xx Only)

Due to a change in the EN 60320 component legislation, the built-in socket and connection cable for the SEB 215 electrobrush have been modified with effect from March 1, 1998.

Vacuum cleaner built-in socket

All vacuum cleaners manufactured since March 1, 1998, are fitted with the new built-in socket.
Designation on the vacuum cleaner data plate:

Old version	S 324i or S 424i
New version	S 324i-2 or S 424i-2

Electrobrush connection cable

Designation on the electrobrush data plate:

Old version	SEB 215
New version	SEB 216

Different versions

If the built-in socket and the electrobrush connection cable plug do not match, the connection cable must be changed as appropriate.

4.0 Description of Function

4.1 Air Clean Plus Filter System

The dustbag is made of two-ply filter paper and acts to filter out up to 99.6% of the dust in the ambient air taken into the cleaner.
Depending on model, either an Active Air Clean filter or an S-class filter is also supplied. It is fitted in a cassette at the exhaust opening. Models with this type of filter are supplied with a blower plate. To use the unit as a blower, the filter cassette must be removed and this blower plate inserted.

4.1.1 Super Air Clean Filter

After air has passed through the motor protection web filter, it flows along the exhaust path in the rear casing to the Super Air Clean filter where remaining dust is removed. The electrostatically pre-charged Air Clean filter can remove almost 100% of any remaining fine dust particles.
The dust quantity remaining in the air is only approx. 0.05 mg/m^3.
The dust quantity in normal room air is approx. 0.10 mg/m^3.

4.1.2 Active Air Clean Filter

The Active Air Clean filter contains active charcoal and can be fitted to absorb odors from the exhaust air.

4.1.3 S-Class Filter

The S-class filter is a particulate air filter and in many countries its fitting is a legal requirement when the vacuum cleaner is to be used in operating rooms or hospitals. This filter complies with all requirements of the IEC (International Electrotechnical Commission) and DIN 44956 regarding S-class filters. It consists of a glass fiber core covered with a filter equivalent to half a Super Air Clean filter.
The dust quantity remaining in the air is classified as particles and is approx. 0.001 mg/m^3.

4.2 Dustbag Change Indicator

4.2.1 S 27x

Differential pressure indicators have now been modified (as with the S 25x series). The following simple test with a new dustbag and the maximum power setting shows which type is installed:

Modified differential pressure indicator: When a hand is placed over the suction inlet then the red marking in the indicator becomes visible.

Previous type of differential pressure indicator: When tested as above, no change in the indicator can be seen and the following test should be carried out:

Operational test for the older type of differential pressure indicator

1. All filters (dustbag compartment, exhaust and Super Air Clean) in the vacuum cleaner must be clean (if necessary, they should be changed).
2. Remove the dustbag.
3. Install the test collar (tool no. B 8081) in the dustbag holder.
4. Close the lid and select the highest power setting.
5. Correct operation of the differential pressure indicator is shown when the red marking of the indicator is fully visible.

4.2.2 S 3xx

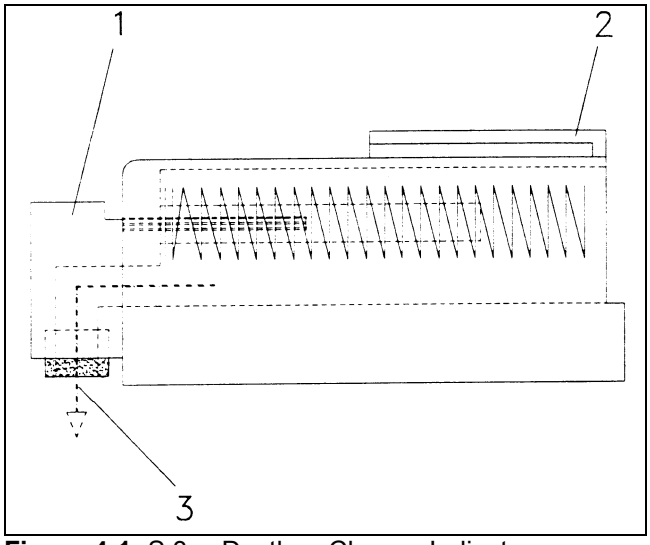


Figure 4-1: S 3xx Dustbag Change Indicator

The dustbag change indicator is incorporated in the dustbag compartment casing.

The point at which the indicator shows that the dustbag should be changed is affected by the following:

- Dust quantity
- Dust type
- Suction attachment
- Power setting

As the bag is filled, its permeability is reduced and the negative pressure level in the dust compartment rises. This increased negative pressure evacuates the dustbag change indicator through its opening (Figure 4-1, Item 3) and moves the red indicator (Figure 4-1, Item 2), so making it visible.

The point at which the indicator shows that the dustbag should be changed can be modified by the adjustment screw (Figure 4-1, Item 1); see Section 6.6. If flour or fine mineral dust is vacuumed, the indicator may show that the dustbag should be changed even if it is not full. Conversely, with coarse dust particles the dustbag may be full even though this is not shown by the indicator. In both cases, the dustbag should be changed.

4.2.3 S 4xx

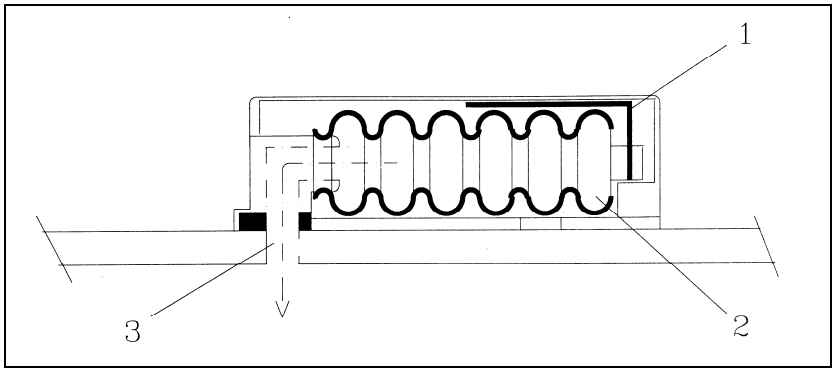


Figure 4-2: S 4xx Dustbag Change Indicator

Depending on the dust quantity and type, and the hose attachment in use, the indicator shows when the dustbag should be changed.

If flour or fine mineral dust is vacuumed, the indicator may show that the dustbag should be changed even if it is not full.

As the bag is filled, its permeability is reduced and the negative pressure level in the bag is reduced. At the same time the negative pressure in the dust compartment rises.

This increased negative pressure evacuates the dustbag change indicator through its opening (Figure 4-2, Item 3) and removes air from the concertina hose (Figure 4-2, Item 2). This then collapses and the visible indicator (Figure 4-2, Item 1) advances along its scale.

4.3 Suction Power

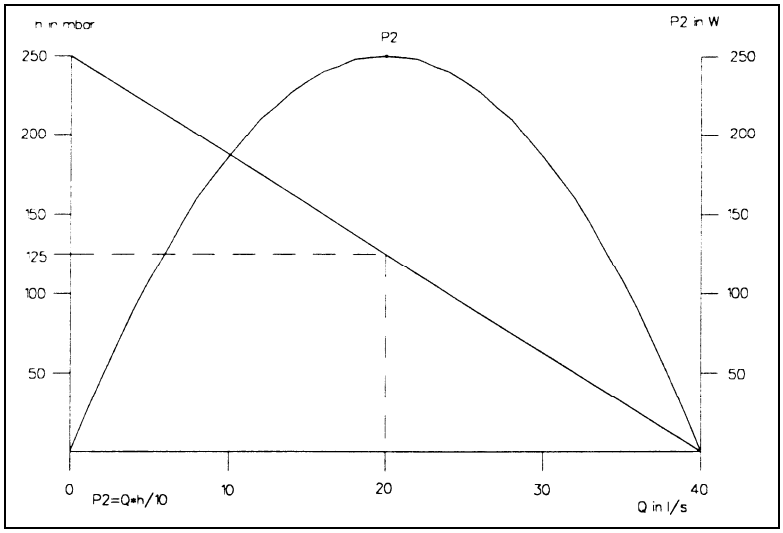


Figure 4-3: Suction Power Curve

The suction power is the product of the negative pressure developed and the air throughput achieved divided by 10. The fan motor extracts air from the

dustbag compartment, so producing a negative pressure at the floor attachment. Air is then sucked into the appliance via the floor attachment and takes dirt and dust particles with it.
Figure 4-3 is a simplified graph showing the relation between the two factors, negative pressure “h” in mbar and air throughput “Q” in liters per second. The suction power “P2” is the product of “h” and “Q” divided by 10.

It can be clearly seen that the maximum negative pressure “h” is developed when the air inlet is completely closed, i.e. air throughput “Q” is zero.

Conversely, maximum air throughput “Q” is achieved when the air inlet is fully open. In this case, however, no negative pressure “h” can be developed. The optimum operating range is, therefore, at the upper area of the suction power “P2” curve.

The floor attachment and other accessories greatly influence the effective suction power:

1. A crevice nozzle, with its small opening, allows a large negative pressure to develop with only a low rate of air throughput.
2. The floor attachment has a large opening and so allows only a low negative pressure to develop but has a high rate of air throughput.

Note:
The above shows that the figure given on the data plate (e.g., P = 1500W) is only a description of motor power and not a true guide to the vacuum cleaner suction power.

4.4 Power Regulation

4.4.1 Models with Manual Power Selection

Power control with models S 310i - S 338i and S 410i - S 438i is achieved by phase chopping, with a potentiometer operated by the power selector (if applicable) providing the phase angle control.

4.4.2 Automatic Models

S 3xx series:
If the set power level is too high, the effort required to slide the floor attachment across a closely woven carpet increases greatly as the suction effect holds the attachment firmly on the floor.

With such carpets, a good seal exists between the floor attachment and the floor so that a lower suction power provides effective dust extraction.
Dust extraction is as thorough as when operating at full power on a smooth floor covering.

With automatic models, the power is set automatically via a negative pressure switch to a level appropriate for the floor covering being cleaned.
This ensures that vacuuming is always performed at the optimal suction power setting. Closely woven carpets will be cleaned with a lower power level thus saving energy.

S 4xx series:
Power control on automatic models is via a negative pressure switch combined with appropriate electronics.

Laboratory experimentation has shown the optimum level of the ratio of suction power to electric power. The efficient automatic method of operation acts to maintain this level and forms the basis of the software-controlled motor power control.

The negative pressure switch has upper and lower switching points. These switching points act to introduce breaks in the power curve.

If the lower switching point is reached, the control system switches to high power. Conversely, if the upper switching point is reached, power is reduced. During phase-chopping control, the triac is electronically controlled.

4.4.3 Booster Setting

Models S 346i - S 348i:
When the booster button is pressed, the electronic control operates the motor at its maximum power setting for 10 seconds. This function can be chosen twice in succession. A third attempt to operate this feature will not be accepted. In this case the booster LED flashes as, after a second boost, the electronic control introduces a pause of 60 seconds before the booster function can be operated again.

With models S 445i - S 448i, the triac for phase-chopping is controlled electronically.
Power is controlled via the +/- buttons on the foot switch assembly.
When the booster button is pressed, the electronic control operates the motor at its maximum power setting for 10 seconds. This function can be chosen twice in succession. A third attempt to operate this feature will not be accepted. In this case the booster LED flashes as, after a second boost, the electronic control introduces a pause of 60 seconds before the booster function can be operated again.
During automatic operation, the negative pressure switch assumes power control.

4.4.4 Phase-Chopping Control - Principle of Operation

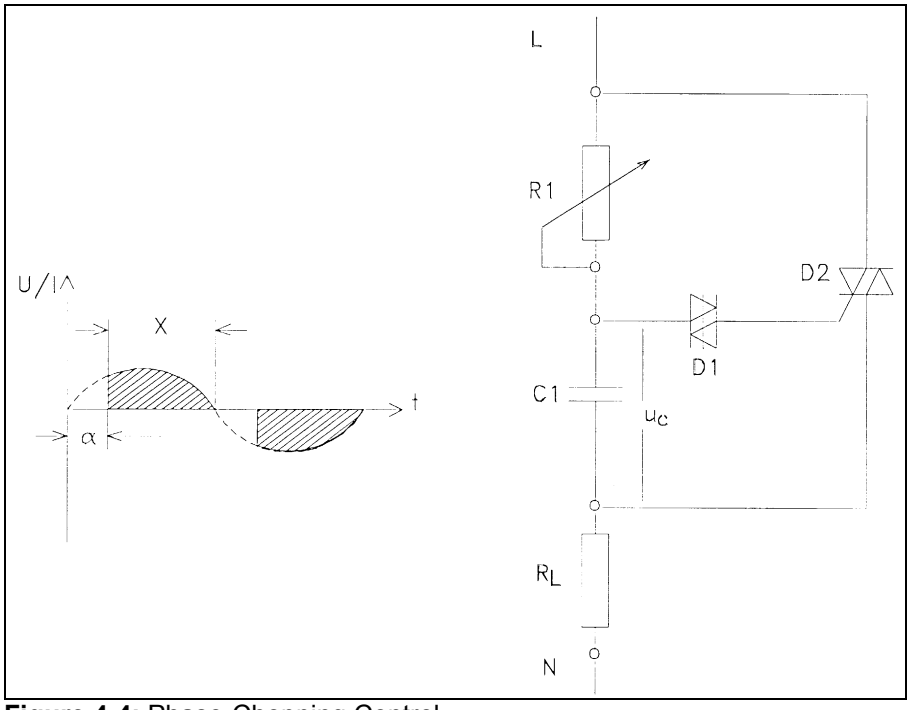


Figure 4-4: Phase-Chopping Control

α	Phase angle
C1	Capacitor
D1	Trigger diode, here a diac
D2	Bi-directional thyristor, here a triac
R1	Potentiometer for setting the phase angle α
R_L	Load, here the motor
X	Triac, conductive

View of half-wave:
The triac D2 blocks (chops) the sinusoidal wave at the zero crossover point. The triac now has high impedance. The capacitor is charged via the circuit R1-C1-R_L.
When U_C reaches the switching level for the diac D1, the capacitor C1 is discharged in a pulse via the gate of D2.
This pulse switches the triac D2, making it conductive.
At the next zero crossover point, the triac D2 blocks the sinusoidal wave and the process repeats itself.
Figure 4-4 shows the chopping of the half-wave. The phase angle, α, is directly proportional to the potentiometer setting R1 which thus controls the average motor power.

5.0 Service and Maintenance

General information:
Service and repair work should only be carried out by qualified persons in accordance with local and national safety regulations.
The appliance should be disconnected from the power supply before starting

service work.

5.1 Dustbag Compartment Lid (and Hinges, if Applicable)

5.1.1 S 25x

1. Open the dustbag compartment lid as far as possible, and then pull upwards to remove.
2. Release locking tabs, using a small flathead screwdriver if necessary.

5.1.2 S 27x

1. Remove the 2 Phillips screws securing the sides of the dustbag compartment lid.
2. Open the dustbag compartment lid as far as possible, and then pull upwards to remove. The hinges may also come off.

5.1.3 S 3xx

1. Open the dustbag compartment lid fully.
2. Push the dustbag compartment lid to the rear to release its clip retainers.
3. Pull the dustbag compartment lid upwards to remove it.

5.1.4 S 4xx

1. Open the dustbag compartment lid until it is vertical. The hinges (Figure 5-1, Item 4) engage and hold it in this position.
2. Use a screwdriver to unclip the hinges from their holders (Figure 5-1, Item 3) on the left and right.
3. To re-install, push the dustbag compartment lid, with its hinges installed, into the holders.

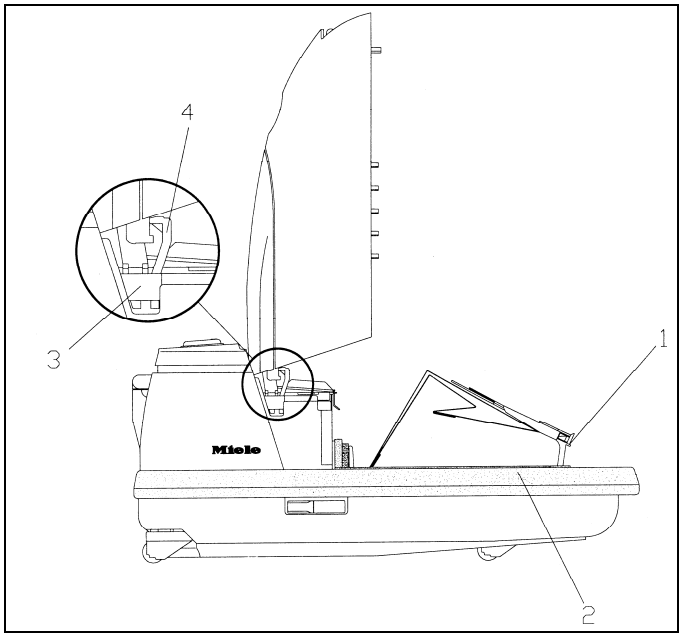


Figure 5-1: Dustbag Compartment Lid, S 4xx

5.2 Accessory Compartment Lid

Open the accessory compartment lid and pull it upwards (using a suitable tool, if necessary) to remove it from the dust compartment lid.

5.2.1 Reassembly (S 2xx Only)

1. Insert the hinges (Figure 5-2, Item 4).
2. Slide and press the lid horizontally (Figure 5-2, Item 1) onto the hinges until the clips engage, and install the spring.
3. When closing the lid, ensure that the spring arm (Figure 5-2, Item 3) is located in its guide slot (Figure 5-2, Item 2).

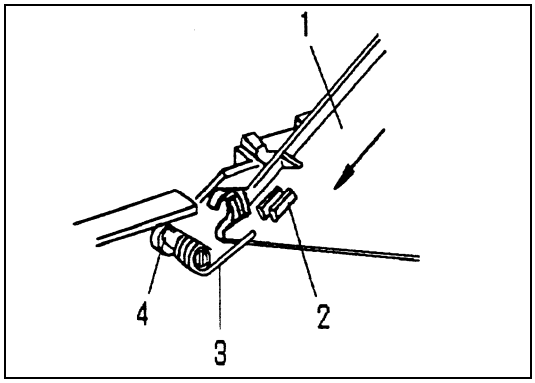


Figure 5-2: Accessory Compartment Lid, Hinges and Springs (S 2xx Shown)

5.3 Dustbag Holder

5.3.1 S 25x

1. Release the holder's locking tabs (Figure 5-3, Item 2) with a screwdriver, and then remove it.
2. When re-installing, ensure that the spring (Figure 5-3, Item 1) is correctly located.

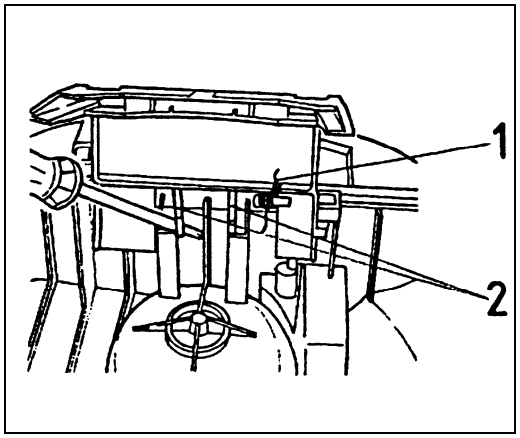


Figure 5-3: Dustbag Holder, S 25x

5.3.2 S 27x

1. Open the dustbag compartment lid and take out the dustbag.
2. Unscrew the holder's retaining screws (Phillips) (Figure 5-4, Items 2 and 5)

to remove it.

3. Re-install the holder (Figure 5-4, Item 1) as follows:
   a. Tighten screw (Figure 5-4, Item 2).
   b. Lightly install screw (Figure 5-4, Item 5) so that the holder (Figure 5-4, Item 1) can still be installed.
   c. Insert the spring (Figure 5-4, Item 3) as shown in Figure 5-4 before installing the holder. The longer spring arm (Figure 5-4, Item 4) must point downwards.
   d. Tighten screw (Figure 5-4, Item 5).

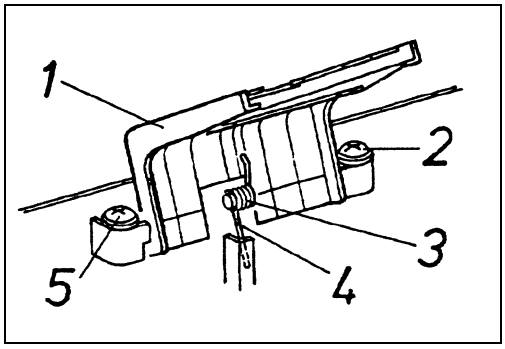


Figure 5-4: Dustbag Holder, S 27x

5.3.3 S 3xx

1. Open the dustbag compartment lid fully.
2. Unsnap and pull up the dustbag holder in the direction of the arrow.
3. Inserting a dustbag: With the dustbag folded, slide it into its holder. Close the dustbag compartment lid.

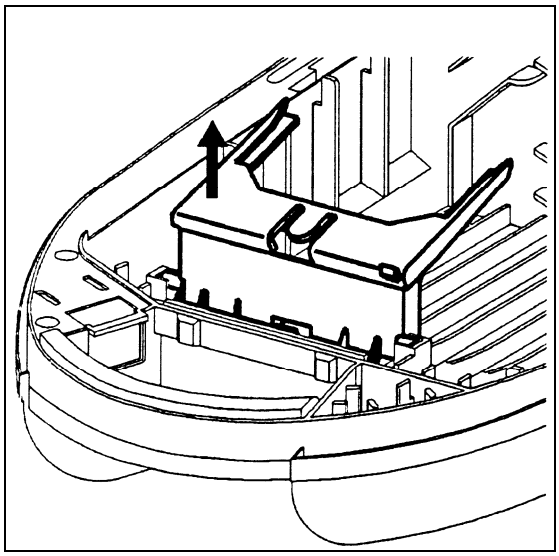


Figure 5-5: Dustbag Holder, S 3xx

5.3.4 S 4xx

1. Remove the dustbag holder screws (Figure 5-1, Item 1) from the left and right.
2. Remove the holder upwards.

3. When re-installing, use pointed pliers to tension and hold the spring before pressing the holder into place.

5.4 Dust Channel

5.4.1 S 25x

1. Open the dust compartment lid.
2. Remove the 3 Phillips screws securing the dust channel to the dust compartment lid and release the dust channel.

5.4.2 S 27x

1. Open the dust compartment lid.
2. Remove the 2 Phillips screws securing the bottom of the dust channel to the underside of the dust compartment lid.
3. Separate the dust channel assembly from the dust compartment lid.

5.4.3 S 3xx and S 4xx

1. Open the dustbag compartment lid fully.
2. Unscrew the 4 Phillips screws (Figure 5-6, Item 1).
3. Remove the dust channel (Figure 5-6, Item 2).

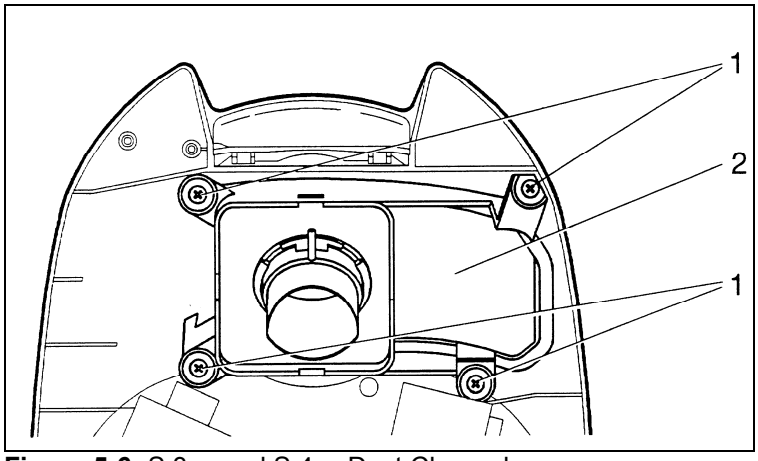


Figure 5-6: S 3xx and S 4xx Dust Channel

5.5 Dustbag Change Indicator

5.5.1 S 25x

1. Remove dust channel first, then remove the additional Phillips screw securing the indicator to the dust compartment lid.
2. Release the indicator from the lid.

5.5.2 S 27x

1. Open the dust compartment lid.
2. Unscrew the 2 Phillips screws securing the indicator to the underside of the dust compartment lid.

3. Release the indicator from the lid.

Note:
Do not unscrew the lacquered screw as this is used to adjust the indicator. If the indicator needs to be dismantled then the indicator disc must first be turned to the right as far as possible.

5.5.3 S 3xx

1. Open the accessory compartment lid.
2. Unscrew the 2 Phillips screws securing the indicator to the lid.
3. Remove the indicator from the lid.

5.5.4 S 4xx

1. The accessory compartment lid catch and the dustbag change indicator form one part.
2. Unscrew the retaining screw and remove the part.
3. When re-installing, ensure that the lid opener spring is correctly located.

5.6 Cap Assembly

5.6.1 S 25x

1. Remove the dust compartment lid (Section 5.1).
2. Remove the 2 Phillips screws securing the cap assembly to the base.
3. Lift up the cap assembly and pull forward to remove it from the base.

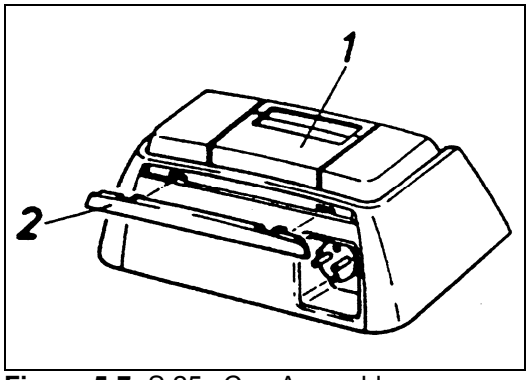


Figure 5-7: S 25x Cap Assembly

Note:
Before installing the cap assembly (Figure 5-7, Item 1) the end strip (Item 2) must be removed. Attach the assembly with the screws (Figure 5-10, Item 2), then clip on the end strip (Figure 5-7, Item 2), while pressing down on the switch cover. Take care not to trap any wires.

5.6.2 S 27x

1. Remove the rear casing (Section 5.7).
2. Remove the 2 Phillips screws securing the trim piece.

3. Separate the complete cap assembly from the rear casing.

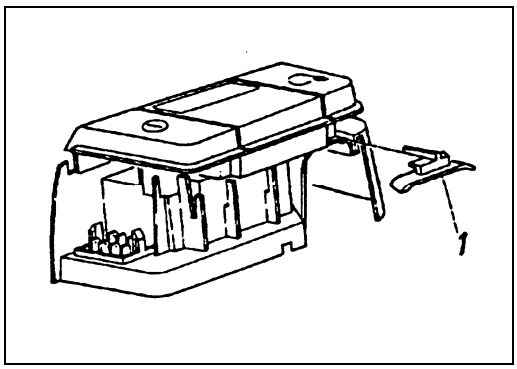


Figure 5-8: S 27x Rear Casing

5.6.3 S 3xx

1. Remove the dustbag compartment lid (Section 5.1).
2. Remove the 2 Phillips screws securing the cap assembly to the base.
3. Unsnap the cap assembly at the front and remove it.

5.6.4 S 4xx

1. The cap assembly is clipped onto the rear casing and held with 2 Phillips screws (Figure 5-9, Item 1).
2. Remove the screws and lift off the cap assembly. The on/off and cord rewind foot switches are now accessible.
3. The electronic, control lamp and power selector can now also be accessed and removed as required.

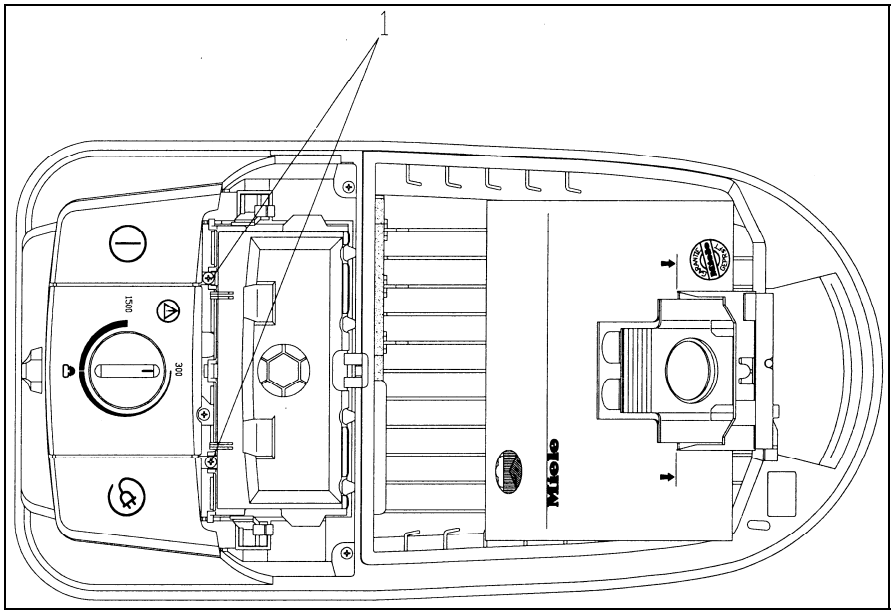


Figure 5-9: Cap Assembly, S 4xx

5.7 Rear Casing

5.7.1 S 25x

1. Remove the dust compartment lid, Section 5.1.
2. Unscrew the 3 Phillips screws (Figure 5-10, Item 1) to remove the rear casing (Figure 5-10, Item 3).
3. The fan assembly and cord rewind mechanism are now accessible.
4. The complete foot switch assembly can be removed by unscrewing its retaining screws (Figure 5-10, Item 2).

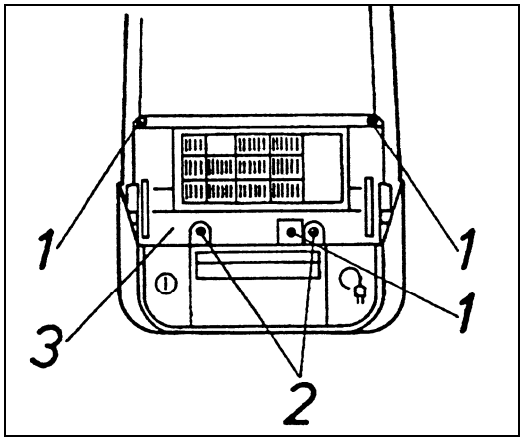


Figure 5-10: Rear Casing, S 25x

5.7.2 S 27x

Unscrew the screws (Figure 5-11, Item 1) and remove the rear casing (Figure 5-11, Item 2).

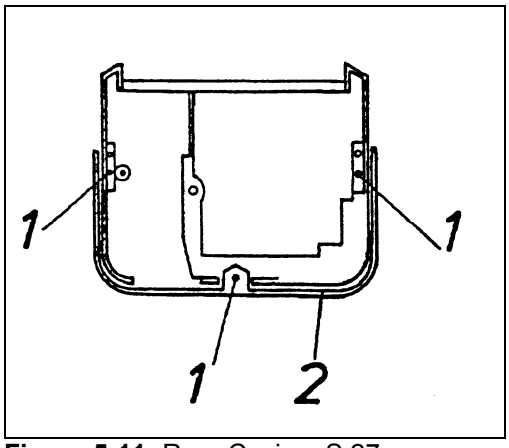


Figure 5-11: Rear Casing, S 27x

5.7.3 S 3xx

1. Remove the dustbag compartment lid, Section 5.1.
2. Remove the filter insert.
3. Remove the cap assembly, Section 5.6.
4. Remove the 5 Phillips screws securing the rear casing (Figure 5-12).
5. Remove the rear casing upwards.

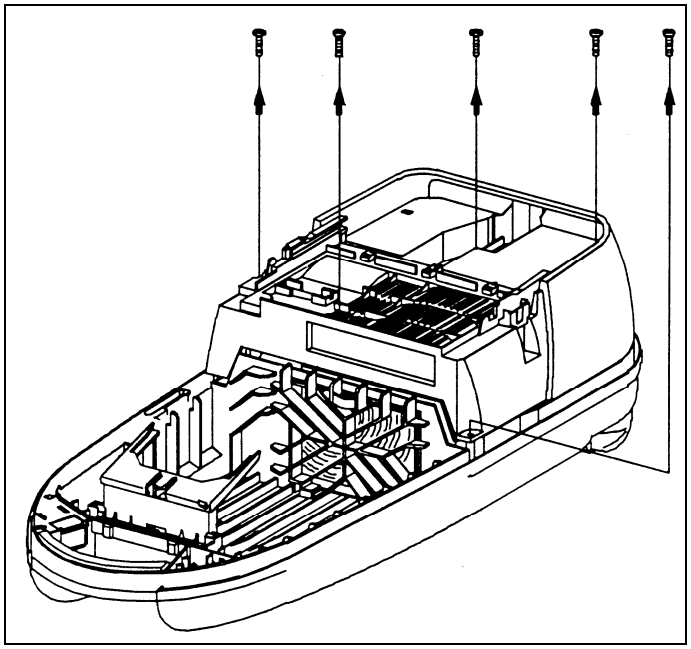


Figure 5-12: Rear Casing, S 3xx

Note:
Before re-installing the rear casing, make sure the gasket is in place!

5.7.4 S 4xx

1. Remove the cap assembly (Section 5.6).
2. Remove the 4 Phillips screws (Figure 5-13, Item 1).
3. Lift the rear casing and disconnect its plug connections.
4. Remove the rear casing. The motor and cord reel are attached to it.
5. After unplugging the connection wires, the cord reel can be removed from its holders on the rear casing.

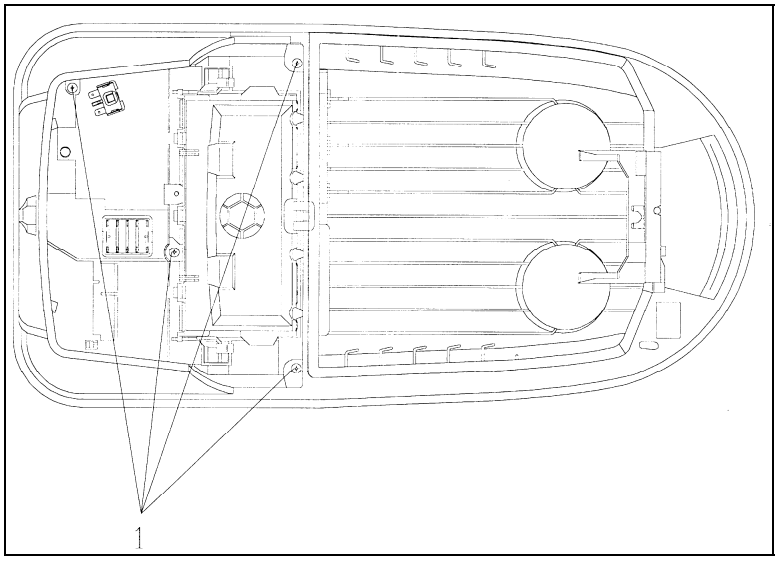


Figure 5-13: Rear Casing, S 4xx

Note:
The cord reel should only be opened with a special bit (tool no. C 6006).

5.8 Foot Switches

5.8.1 S 25x and S 27x

1. Remove suction power selector (S 27x only).
2. Press the locking tab (Figure 5-14, Item 1 or 2) down with a small screwdriver and slide out the appropriate foot switch.

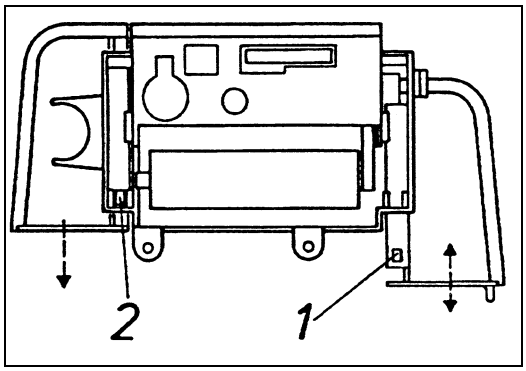


Figure 5-14: Foot Switches, S 25x and S 27x

5.8.2 S 3xx

1. Press the foot switch (Figure 5-15, Item 1) down.
2. At the same time, use a small screwdriver to release the catch (Figure 5-15, Item 2).
3. Remove the foot switch upwards from the cap assembly.

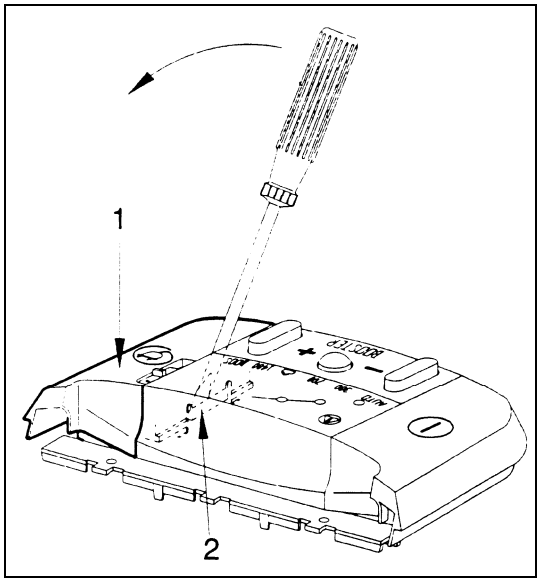


Figure 5-15: Foot Switch, S 3xx

5.8.3 S 4xx

1. Remove the cap assembly (Section 5.6).
2. Loosen the on/off and cord rewind foot switches. Use a screwdriver to release the retaining clips at Figure 5-16, Item 3, and push out the foot switches.

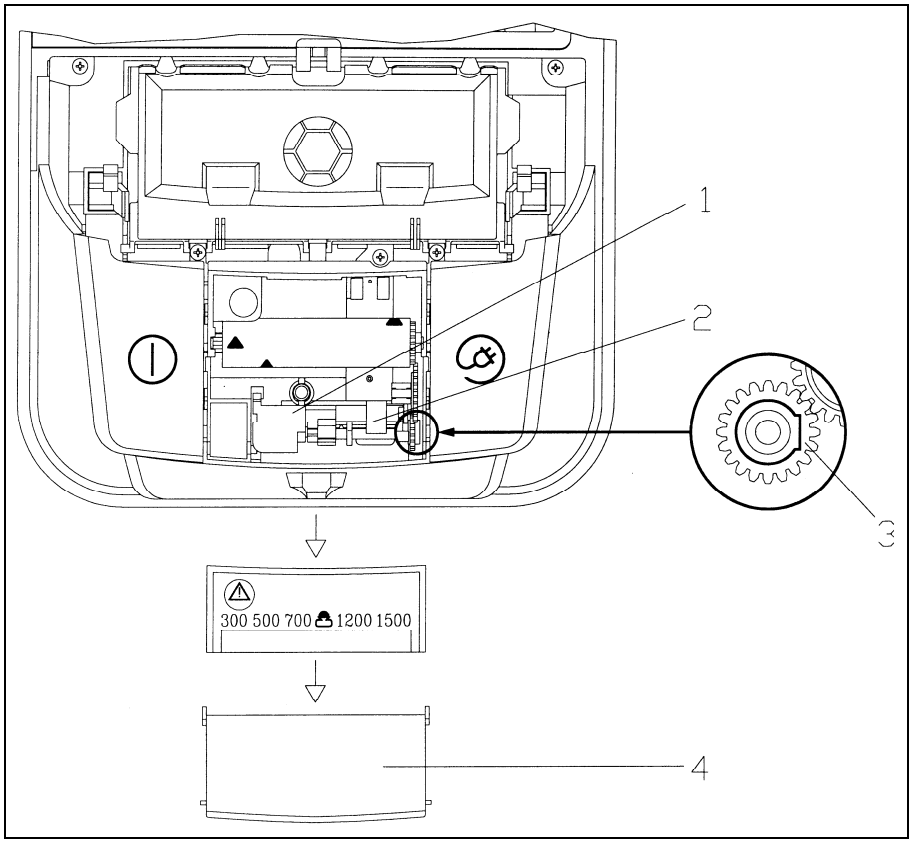


Figure 5-16: Foot Switch, S 4xx

5.9 Potentiometer/Suction Power Selector

5.9.1 S 2xx

2x1i & 2x2i:
Remove the selector switch knob and change the potentiometer.

2x4i & 2x5i:
1. Release the catch (Figure 5-17, Item 2) with a small screwdriver and remove the switch cover (Figure 5-17, Item 1).
2. The potentiometer control (Figure 5-19, Item 3) can be removed after releasing the catches (Figure 5-18, Item 1).
3. The toothed belt (Figure 5-19, Item 1) can be replaced when the indicator cylinder (Figure 5-19, Item 4) is levered from its holder.

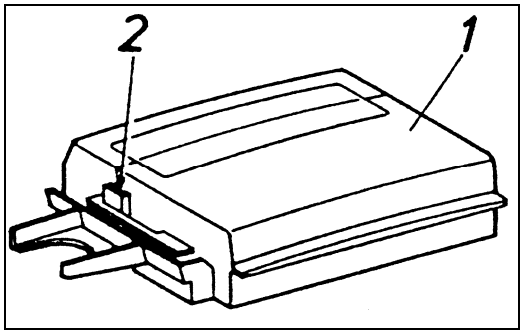


Figure 5-17: Potentiometer Cover, S 2x4i and S 2x5i

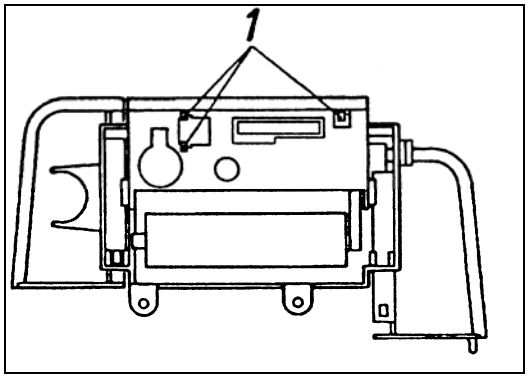


Figure 5-18: Catches on Potentiometer Control, S 2x4i and S 2x5i

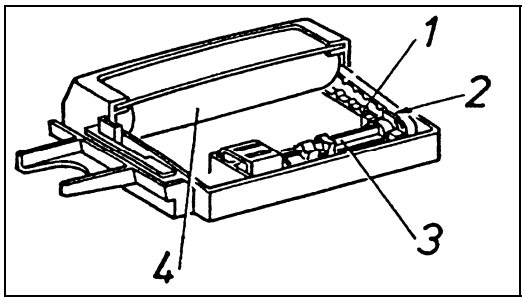


Figure 5-19: Potentiometer Control, S 2x4i and S 2x5i

Important:
Before replacing the complete potentiometer assembly (Figure 5-19, Item 3) and the indicator cylinder (Figure 5-19, Item 4), ensure the following:
The cam (Figure 5-19, Item 2) of the belt drive cog must point upwards and the indicator cylinder should be set to show the lowest setting ("Automatic" for S 280i).

Note:
For S 278i, the suction power selector is on the handle of the wired hose (Section 5.22).

5.9.2 S 3xx

May include overheat light, depending on model.

1. Remove the cap assembly (Section 5.6).
2. Take off the rotary dial (pry off with a small screwdriver, if necessary).
3. Remove the Phillips screw.
4. Use a small screwdriver to release the spade connections from the white terminal block (mark/tag all connections before disconnecting them!).
5. Release the overheat light and potentiometer from the cap assembly.

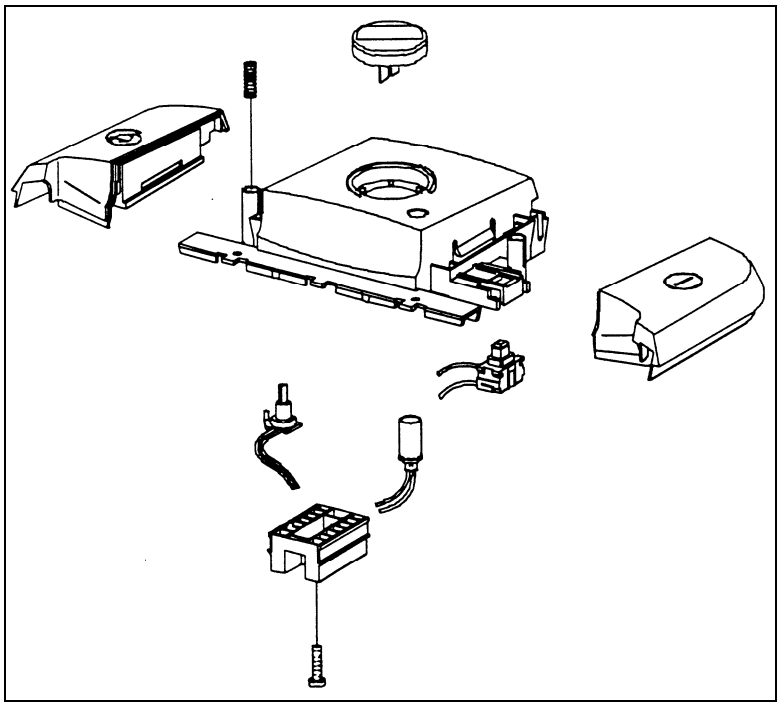


Figure 5-20: Rotary Potentiometer, S 3xx

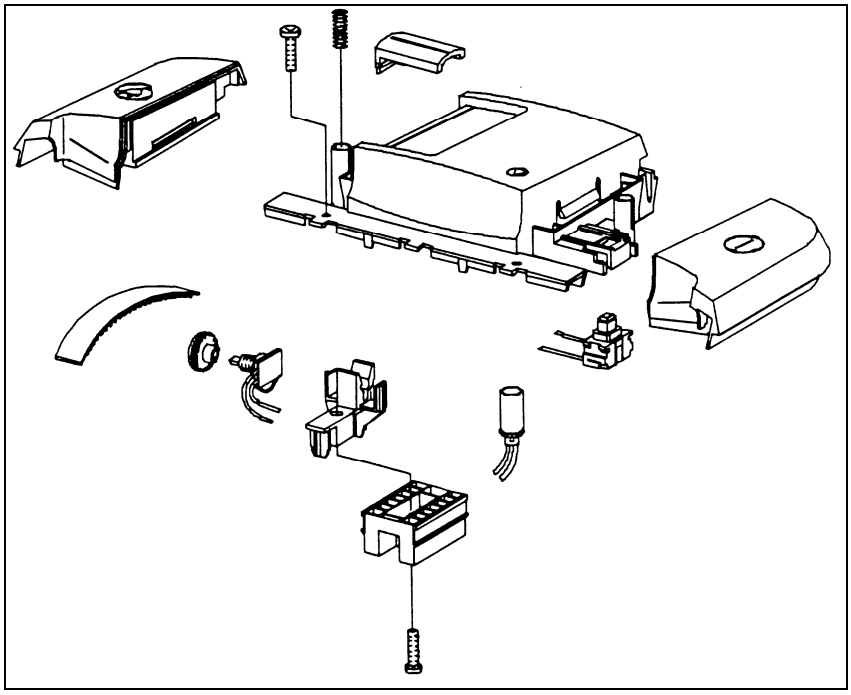


Figure 5-21: Slide Potentiometer, S 3xx

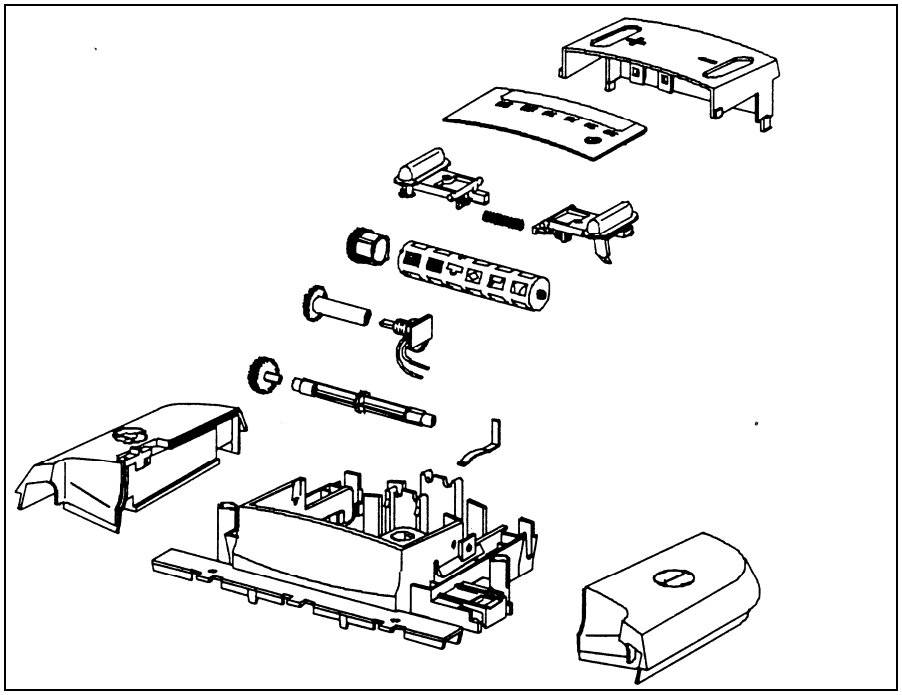


Figure 5-22: +/- Buttons, S 3xx

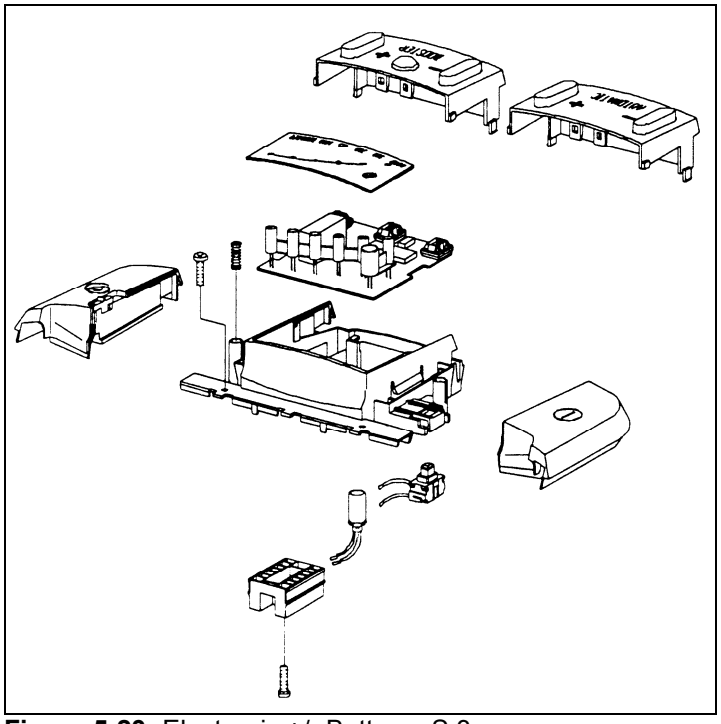


Figure 5-23: Electronic +/- Buttons, S 3xx

5.9.3 S 4xx

Rotary potentiometer:

1. Carefully ease off the switch knob using a lid opener, part no. 3051670.
2. Use a small screwdriver to hold the clip fitting and press gently on the

switch spindle to release the switch.

Slide potentiometer:

1. Remove the foot switch assembly (Section 5.8).
2. Set the slide potentiometer to 300W.
3. Remove the group plug (Figure 5-24, Item 2) from the underside. Take care to note its positioning.
4. Remove the regulator (Figure 5-24, item 4) with cylinder and replace as required.
5. When re-installing, turn the regulator clockwise to its end stop, locate the cylinder in the axial guide (Figure 5-24, Item 1) and clip the holder with potentiometer into the guide slit (Figure 5-24, Item 5).

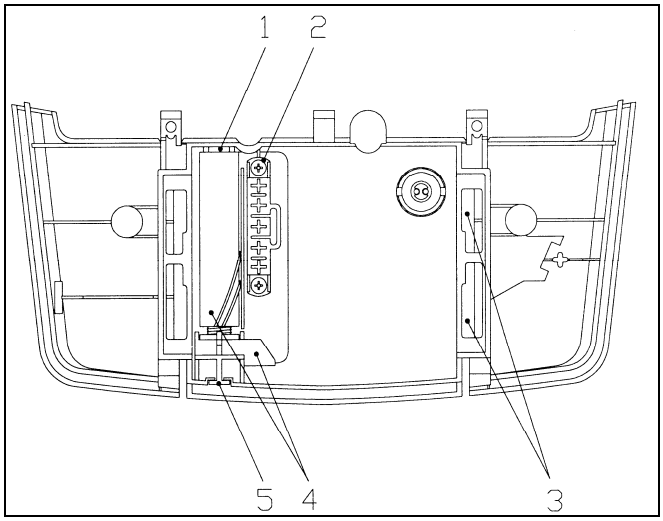


Figure 5-24: S 4xx Slide Potentiometer

Foot-operated power selector:

1. Remove the cap assembly (Section 5.6).
2. Loosen the on/off and cord rewind foot switches. Use a screwdriver to release the retaining clips at Figure 5-25, Item 3, and push out the foot switches.
3. Unclip the selector switch cover (Figure 5-25, Item 4) on the left and right, and remove it.
4. Lift the retaining clip (Figure 5-25, Item 2) slightly to remove the potentiometer holder and drive piece (Figure 5-25, Item 1).

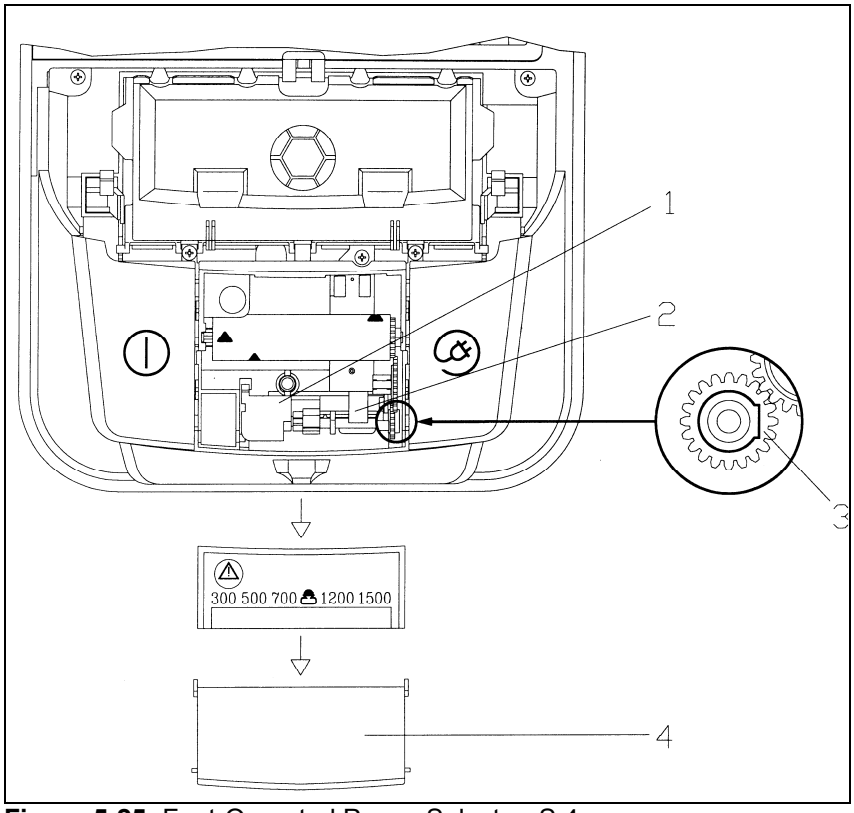


Figure 5-25: Foot-Operated Power Selector, S 4xx

Note:
Before re-installing, ensure that the flattened shaft side of the cog drive (Figure 5-25, Item 3) is vertical and at the front, and that the indicator cylinder shows the lowest setting.

5.10 Electronic (S 4xx Only)

1. Remove the foot switch assembly (Section 5.8).
2. Unscrew the group plug (Figure 5-26, Item 2) from the underside. Take care to note its positioning.
3. Release the retaining clips at the rear (Figure 5-26, Item 1) and front (Figure 5-26, Item 2) of the power selector switch (Figure 5-26, Item 3) and remove the selector switch.
4. Slide out the fascia piece (Figure 5-26, Item 4).
5. Unclip the electronic's retainers (Figure 5-26, Item 5) and lift out the electronic.
6. Re-install by following these instructions in reverse order.

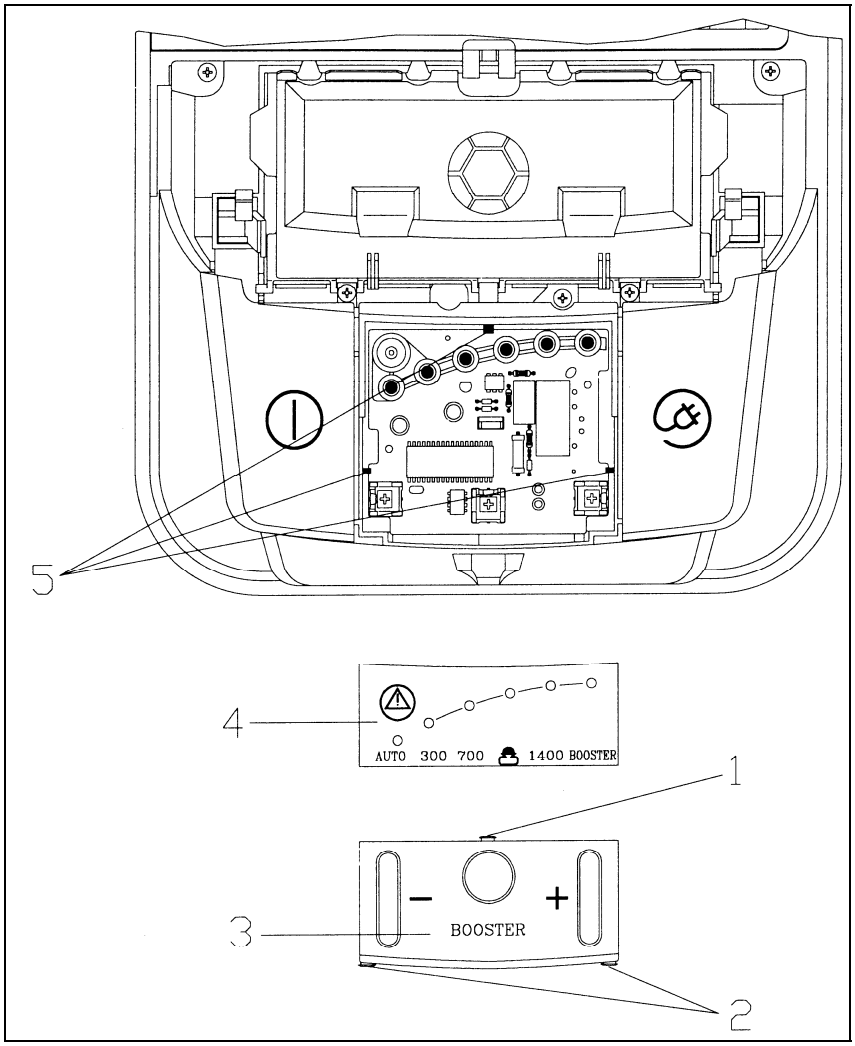


Figure 5-26: S 4xx Electronic Removal

5.11 Fault/Overheat Indicator Lamp

5.11.1 S 2xx

Remove the foot switch assembly (Section 5.8). The indicator lamp(s) should always be pushed out from below as they are clipped into place.

5.11.2 S 4xx

The lamp can be removed from below by gently pulling its connection wires.

5.12 Plug Housing

5.12.1 S 25x

1. Remove the cap and foot switch assemblies (Sections 5.6 and 5.8).
2. Release the retaining clips and remove the plug housing.

5.12.2 S 27x

1. Remove the mounting panel and cap assembly (Section 5.6).
2. Release the retaining clips (Figure 5-27, Item 1) and remove the plug housing.

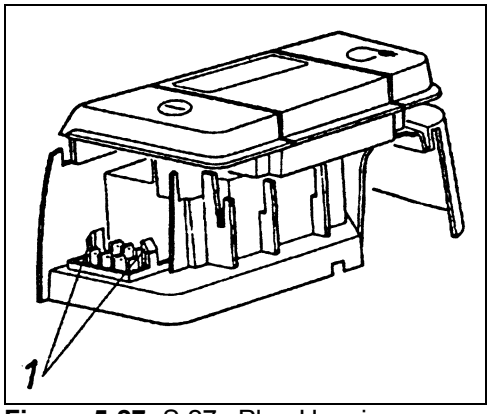


Figure 5-27: S 27x Plug Housing

5.13 On/Off Switch

5.13.1 S 25x

1. Remove the cap assembly (Section 5.6).
2. Release the switch from the rear casing.

5.13.2 S 27x

Dismantle the cap and foot switch assemblies (Sections 5.6 and 5.8) to access the switch.

5.13.3 S 3xx

1. Remove the cap assembly (Section 5.6).
2. Release the switch from the cap and disconnect its electrical connections.

5.14 Flush Socket Outlet

5.14.1 S 25x

Remove the Phillips screw securing the plastic strip to the underside of the vacuum base. The plastic strip will then snap out, allowing access to the outlet.

5.14.2 S 27x

1. Open the dust compartment lid.
2. Use a flathead screwdriver to apply pressure around the locking tabs and so push out the socket.

Note:
With models S 280i and S 282i (Automatic) the sensor, Figure 5-27, Item 1, must first be removed (see Section 5.15).

5.15 Sensor (Automatic Models S 280i - S 282i)

1. Remove the cover (see Figure 5-31, Item 3).
2. Unscrew the retaining screws (Figure 5-28, Item 2) and disconnect the sensor connection wires (Figure 5-28, Item 3).
3. Remove the sensor (Figure 5-28, Item 1).

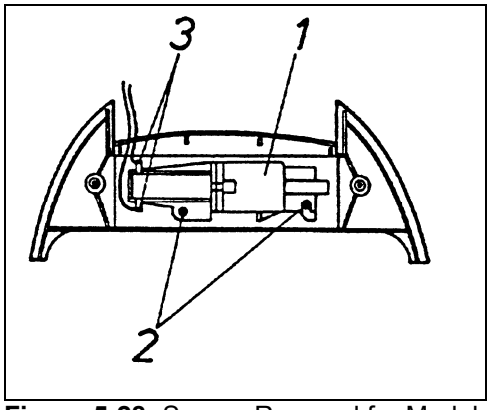


Figure 5-28: Sensor Removal for Models S 280i - S 282i

5.16 Cord Reel

5.16.1 S 23x

1. Remove the cap assembly (Section 5.6).
2. Remove the Phillips screw securing the cord reel to the rear casing.
3. Release the cord reel from the rear casing.
4. Disconnect the cord reel electrical connections.

5.16.2 S 25x

1. Remove the cap assembly (Section 5.6) and remove the reel retaining screw(s) (Phillips). Remove the cord reel, and then disconnect its electrical connections.
2. When replacing the cord reel or brake lever, the following should be noted:
   a. **Cap assembly with lug** (Figure 5-29, Item 1): No brake lever modification is required.
   b. **Cap assembly without lug:** File down part of the brake lever top edge (Figure 5-30, Item 2) until it matches Figure 5-30, Item 1.

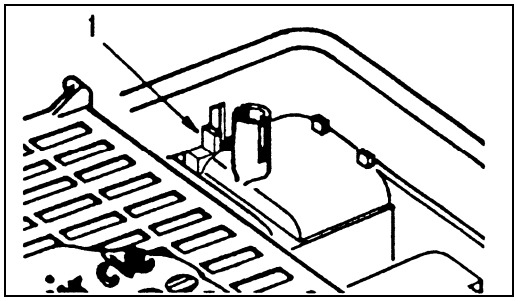


Figure 5-29: Cap Assembly with Lug, S 25x Models

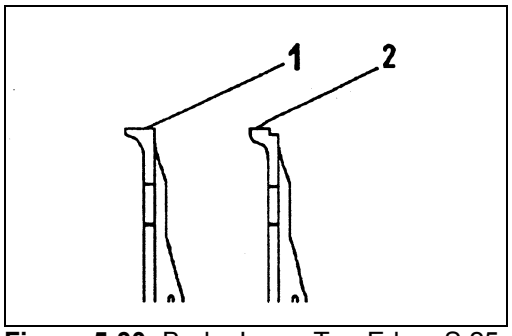


Figure 5-30: Brake Lever Top Edge, S 25x Models

5.16.3 S 27x

1. Dismantle the mounting panel and remove the reel retaining screws.
2. Disconnect the electrical connections and remove the cord reel.

5.16.4 S 3xx

The cord reel is installed in the cap assembly.

1. Remove the cap assembly (Section 5.6).
2. Remove the Phillips screw securing the cord reel.
3. Remove the Phillips screw securing the terminal block next to the cord reel.
4. Ease open the group plug retaining lug and disconnect the plug.
5. Remove the cord reel upwards.

Note:
The cord reel must only be installed when the cord is fully wound in. This ensures correct operation of the rewinding mechanism. Before the cord reel is clipped into place in the cap assembly, the mains plug must be inserted through the casing opening.

5.16.5 S 4xx

See cap assembly, Section 5.6.

Note:
The cord reel should only be opened with a special bit, tool no. C 6006.

5.17 Power Cord

The power cord supplies power to the built-in socket. For models S 238i and S 240i it is also used to control suction power.

5.17.1 S 27x

1. Remove the plug housing screws (Phillips) (Figure 5-31, Item 1), pull off the bumper strip, if applicable (Figure 5-31, Item 2) and remove the plastic strip from the underside of the vacuum.
2. Disconnect the power cord at the terminal block or the sensor (S 280i).

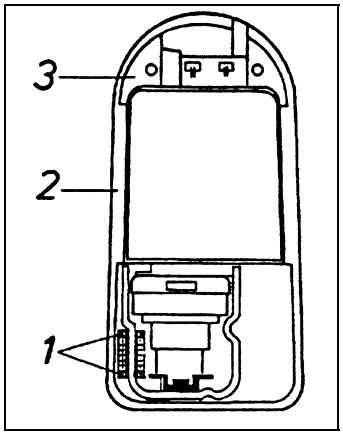


Figure 5-31: S 27x Power Cord Removal

5.17.2 S 3xx

1. Remove the cord reel (Section 5.16).
2. Pull out and unwind the power cord (Figure 5-32, Item 1).
3. Block the drum securely to prevent it from rewinding.
4. Remove the 2 screws securing the upper part of the cord reel (Figure 5-32, Item 2).
5. Ease open the retaining lugs (Figure 5-32, Item 3) and remove the upper part of the cord reel.
6. Remove the power cord.

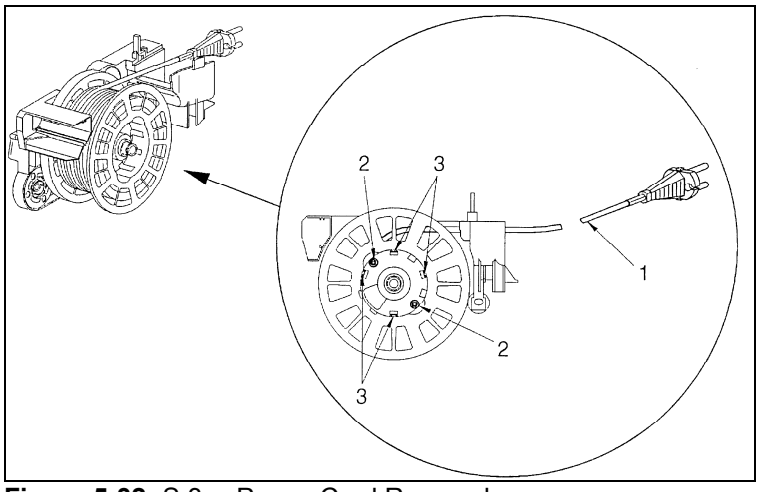


Figure 5-32: S 3xx Power Cord Removal

Note:
When re-installing the cord in the cord reel, ensure that its end is firmly pressed down into the strain relief and held securely.

5.18 Motor Assembly

5.18.1 S 25x

1. Remove the cap assembly (Section 5.6).
2. Take out the motor and disconnect its electrical connection.
3. The location of individual motor components is shown in Figure 5-33.

Important:
When re-installing the motor, care must be taken to ensure that the rubber cushion (Figure 5-33, Item 3) and the motor seal (Figure 5-33, Item 13) are correctly located.

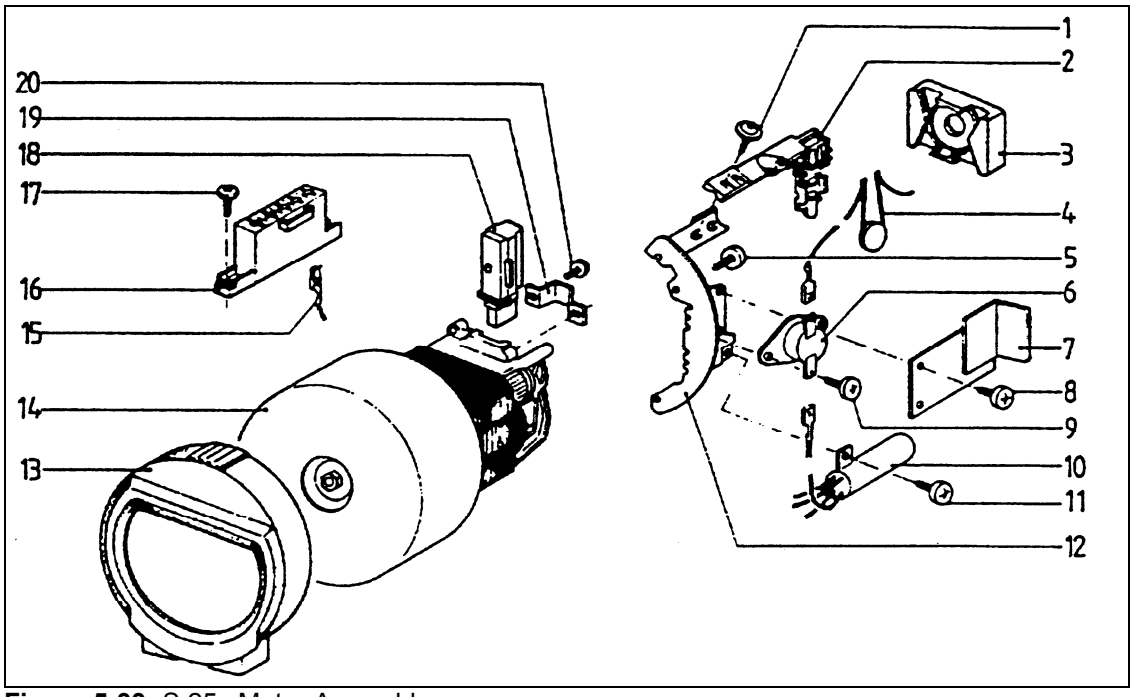


Figure 5-33: S 25x Motor Assembly

1 Retaining screw
2 Holder
3 Rubber cushion
4 NTC resistor
5 Retaining screw
6 Thermostat
7 Speed control electronic
8 Retaining screw
9 Retaining screw
10 Interference suppression capacitor
11 Retaining screw
12 Bracket
13 Motor seal
14 Motor
15 Plug
16 Plug housing
17 Retaining screw
18 Motor brush
19 Clamping bracket
20 Retaining screw

5.18.2 S 27x

1. Remove the cap assembly (Section 5.6).
2. Remove the two Phillips screws securing the motor to the rear casing and disconnect its electrical connections.
3. The location of individual components is shown in Figure 5-34.

Important:
When re-installing the motor care must be taken to ensure that the rubber cushion (Figure 5-34, Item 4) and the motor seal (Figure 5-34, Item 7) are correctly located! The speed control will vary depending on the type of power selector switch installed.

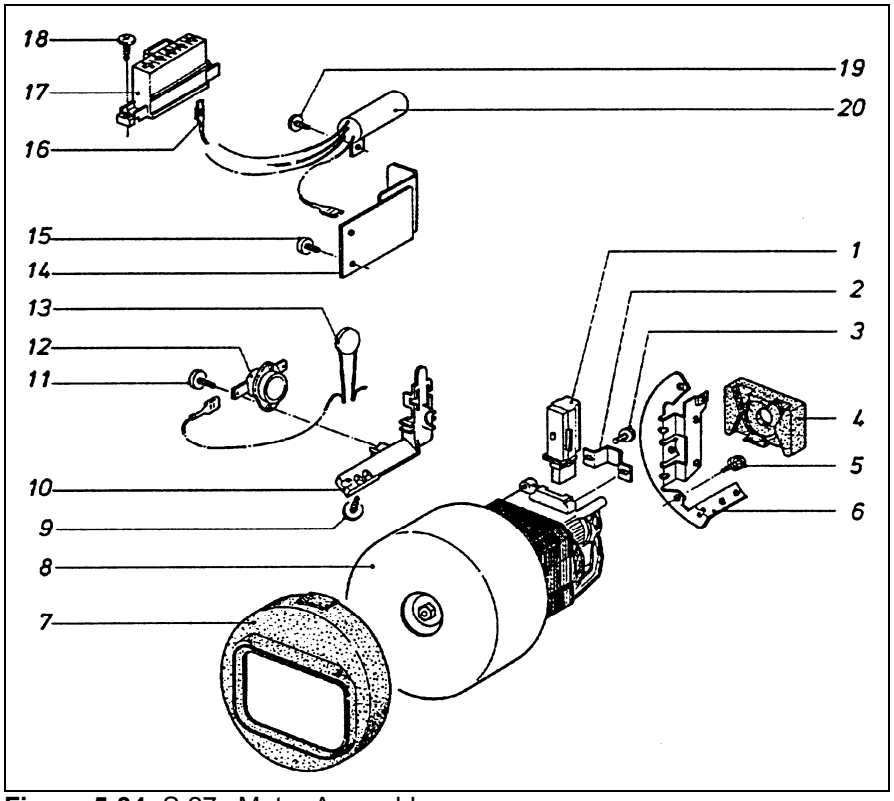


Figure 5-34: S 27x Motor Assembly

1 Motor brushes
2 Clamping bracket
3 Retaining screw
4 Rubber cushion
5 Retaining screw
6 Holding bracket
7 Motor seal
8 Motor
9 Retaining screw
10 Holding bracket
11 Retaining screw
12 Thermostat
13 Resistor
14 Speed control electronic:
EDL 202, S 271i - S 276i
EDL 302, S 280i -S 282i
EDL 402, S 278i
15 Retaining screw
16 Plug
17 Plug housing
18 Retaining screw
19 Retaining screw
20 Interference suppression capacitor

5.18.3 S 3xx

The motor is installed in the cap assembly.

1. Remove the cap assembly (Section 5.6).
2. Remove the Phillips screw securing the motor.
3. Ease open the group plug retaining lug and disconnect the plug.
4. Lift the motor at the rear and remove it.
5. Remove the motor holder and seal.

Reinstalling:

1. Install the holder with seal on the motor.
2. Ensure that the motor seal is positioned correctly.
3. Reinstall the motor in the rear casing.

5.18.4 S 4xx

Motor with holding bracket:

1. Unscrew the rear casing (Section 5.7).
2. After lifting the rear casing, the holding bracket (Figure 5-35, Item 1) can be removed, thus releasing the motor.

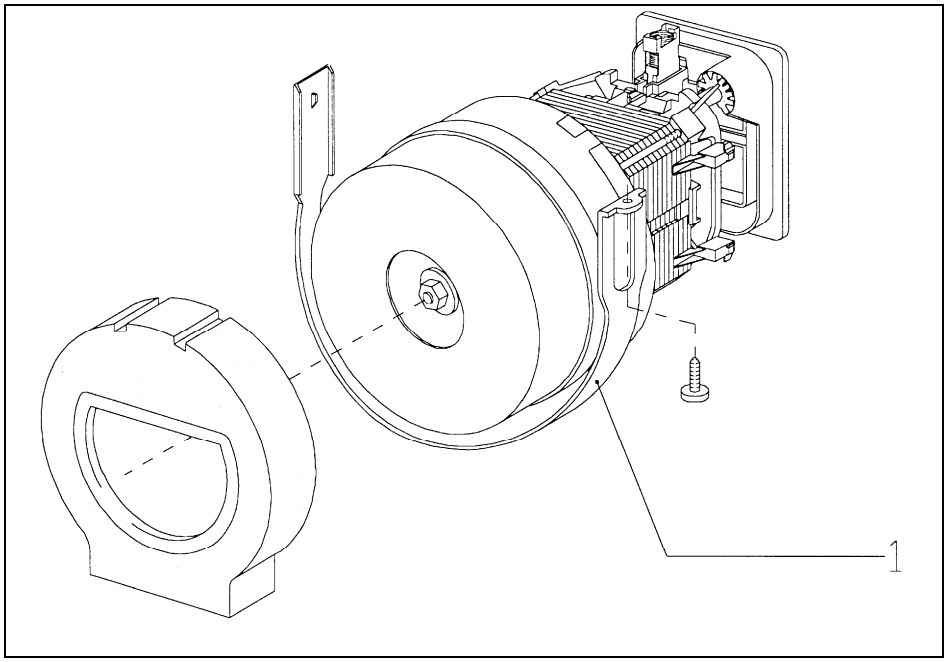


Figure 5-35: S 4xx Motor with Holding Bracket

Motor with central bearing:

1. Unscrew the rear casing (Section 5.7).
2. Unclip and release the central bearing (Figure 5-36, Item 1) from the rear casing.
3. Unscrew the motor holder (Figure 5-36, Item 2) if necessary and remove the motor.
4. If a holding bracket is also present as in Figure 5-35 then it should also be removed.

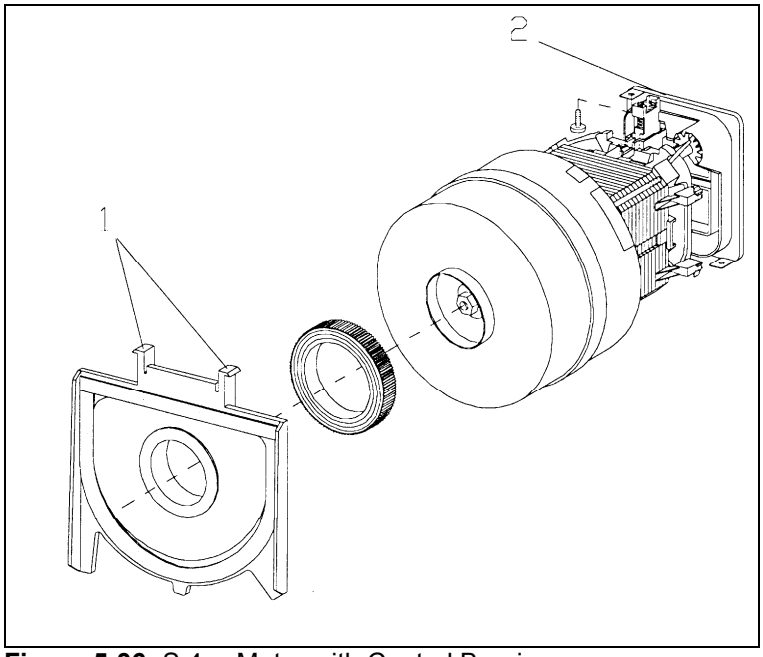


Figure 5-36: S 4xx Motor with Central Bearing

5.19 Motor Electronic (Speed Control Board)

5.19.1 S 3xx

1. Remove the motor (Section 5.18).
2. Depending on model, either remove the 2 Phillips screws securing the electronic or pull out the electronic from its plug connections.

5.19.2 S 4xx

1. Remove the 2 Phillips screws securing the electronic.
2. Pull out the electronic from its plugs on the motor.

5.20 Motor Brushes

5.20.1 S 3xx

1. Remove the motor (Section 5.18).
2. Pull off the rear holding plate on the motor.
3. Remove 2 screws from each brush.
4. Remove the brushes.

Note:
When the brushes need replacing, both must always be changed at the same time.

5.20.2 S 4xx

1. Remove the motor holder (Figure 5-36, Item 2).
2. Unscrew the Torx screws from the brush holders. Unplug and remove the brush holders.

3. When the brushes need changing, always change both at the same time. The brush set always includes one brush with automatic worn-brush cut-out.

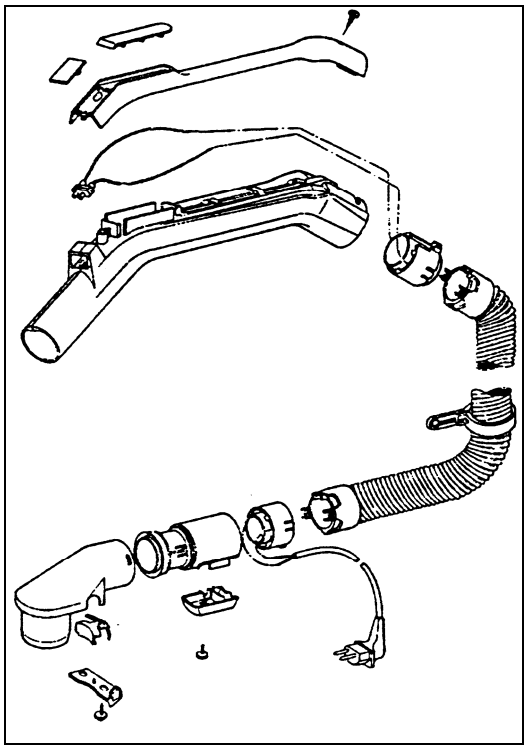
5.21 Electric Brush Socket (S 254i and S 255i Only)

1. Unscrew the retaining screws under the socket.
2. Remove the cord cover.

5.22 Suction Hose with Integrated Wiring (S 2xx Only)

5.22.1 S 254i and S 255i

This has a built-in socket in the handle for installing the S 016 electric brush.

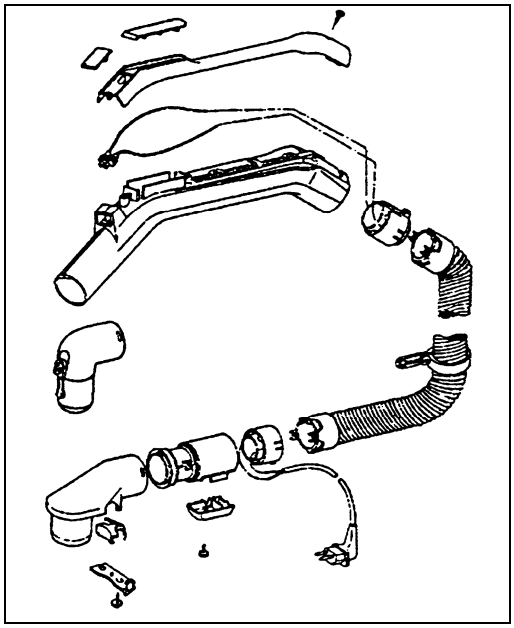


Note:
2-wire connection cable.

Figure 5-37: S 254i and S 255i Suction Hose with Integrated Wiring

5.22.2 S 270i - S 276i, S 280i

Wired hose with built-in socket in the handle for the S 016 electric brush.

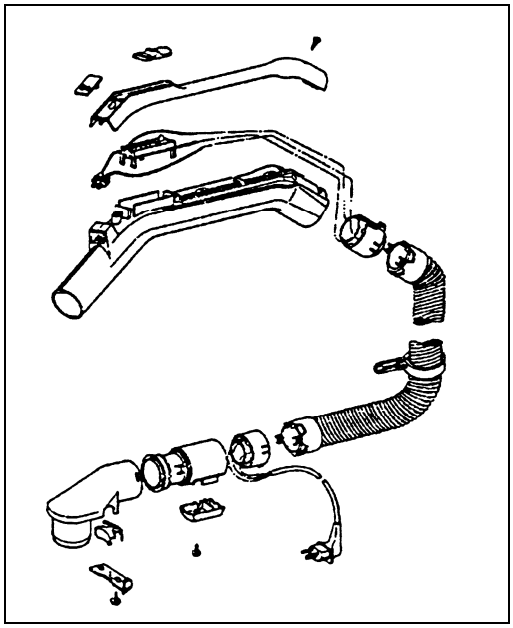


Note:
2-wire connection cable.

Figure 5-38: S 270i - S 276i, S 280i Suction Hose with Integrated Wiring

5.22.3 S 278i

Wired hose with slide potentiometer speed control and built-in socket in the handle for the S 016 electric brush.



Note:
3-wire connection cable. Suction power selector (slide potentiometer) on the handle.

Figure 5-39: S 278i Suction Hose with Integrated Wiring

5.23 Turbo Brush (S 2xx Only)

Unscrew the screws (Figure 5-40, Item 2) to remove the cover (Figure 5-40, Item 1). All brush parts are then accessible.

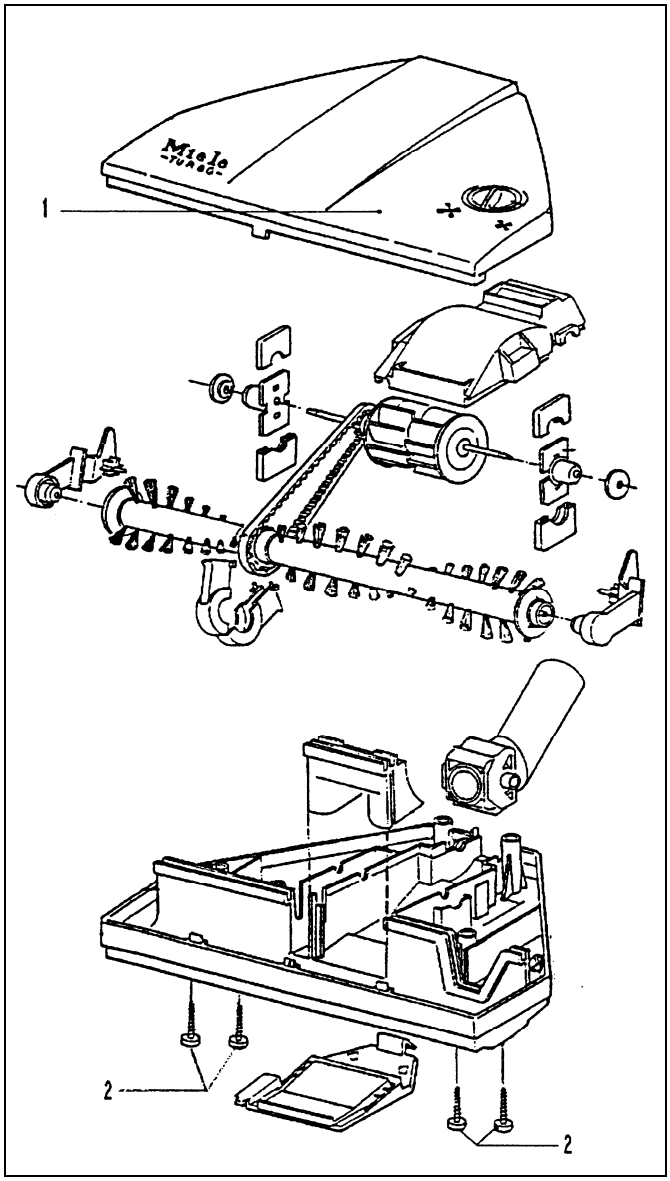


Figure 5-40: S 2xx Turbo Brush

5.24 Buffer/Bumper Strip (S 3xx and S 4xx Only)

5.24.1 S 3xx

1. The bumper strip around the base casing also acts as a seal for the dustbag and motor compartments.
2. Remove the cap assembly (Section 5.6).
3. Remove the 2 Phillips screws under the carrying handle.
4. Unfasten the bumper strip.

Note:
After re-installing, the bumper strip must be seated correctly and evenly around the casing, or suction will be lost.

5.24.2 S 4xx

The bumper strip (Figure 5-1, Item 2) also acts as a seal for the dustbag and motor compartments.

1. To remove the bumper strip, first unscrew the two Phillips screws in the carrying handle.
2. Remove the dustbag compartment lid (Section 5.1) and the rear casing (Section 5.7). The bumper strip can now be unfastened. When re-installing, ensure that it is seated correctly.

5.25 Grill for HEPA Filter (S 3xx Only)

1. Remove the dust compartment lid (Section 5.1).
2. Loosen the 2 Phillips screws securing the filter grill.
3. Release the grill at the rear and unclip at the front to remove.

6.0 Fault Diagnosis

6.1 Improved Castor (S 2xx Only)

To improve the floor-running properties of canister vacuum cleaners a modified castor and a new washer have been introduced. This combination, ready-lubricated with silicone oil, is available from the spares department under part no. 3594262.

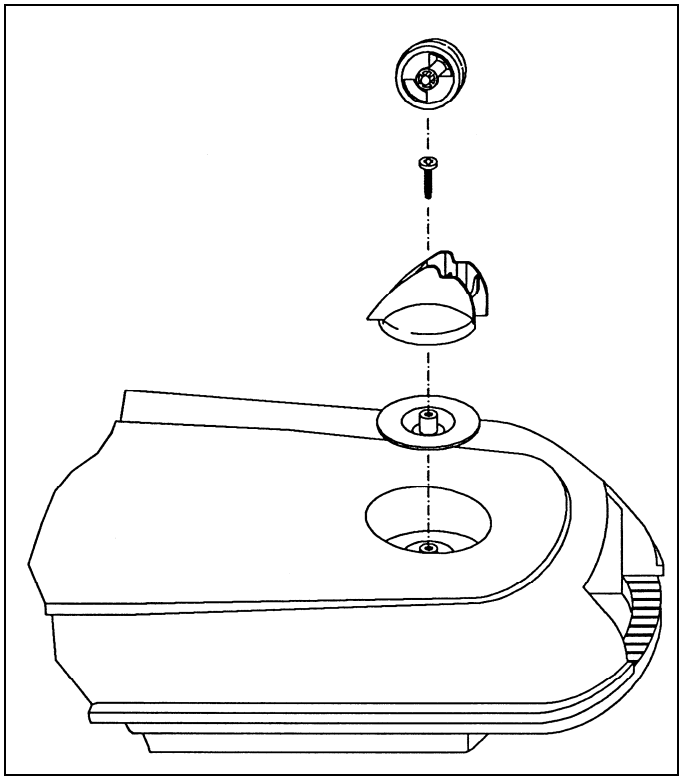


Figure 6-1: Modified Castor, S 2xx

6.2 Dirty Dustbag Compartment (S 27x and S 28x Only)

6.2.1 Dustbags, Old and New Versions

Possible cause:

The raised rim (Figure 6-2, Item 3) on the dustbag collar (Figure 6-2, Item 1) may indent and deform the sealing ring on the dust guide (Figure 6-2, Item 2). A dustbag without a raised rim on the collar (Figure 6-3, Item 1) can then not form a tight seal on the deformed sealing ring (see caution symbol in Figure 6-3) of the dust guide (Figure 6-3, Item 2).

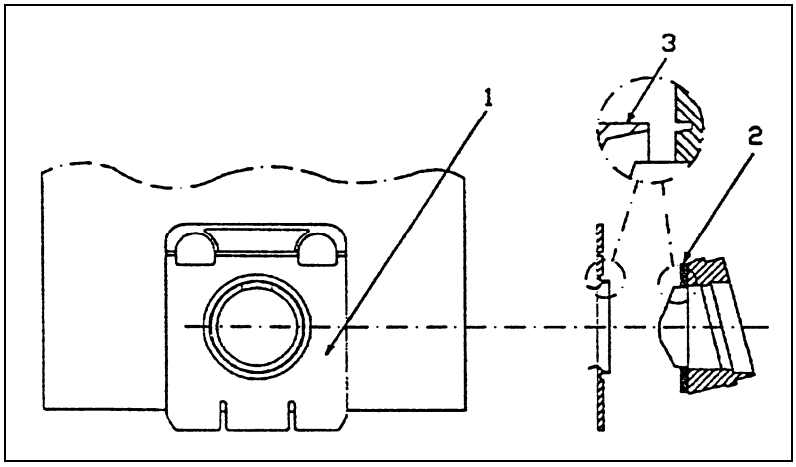


Figure 6-2: Dustbag with Raised Rim on Collar, S 27x and S 28x

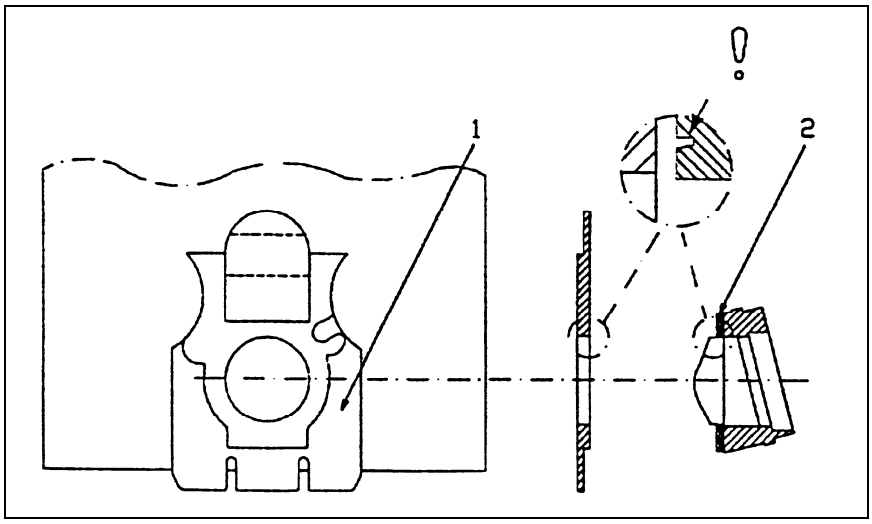


Figure 6-3: Dustbag without Raised Rim on Collar, S 27x and S 28x

Remedy:
In both cases replace the dust guide sealing ring (part no. 3430580).

6.2.2 Modified Dustbag Holder

A check should be made to establish whether the modified holder with a catch (Figure 6-4, Item 2) to hold the dustbag (Figure 6-4, Item 1) is installed. The modified holder (part no. 3558641) prevents the dustbag from sliding out of the holder when the compartment lid is closed.

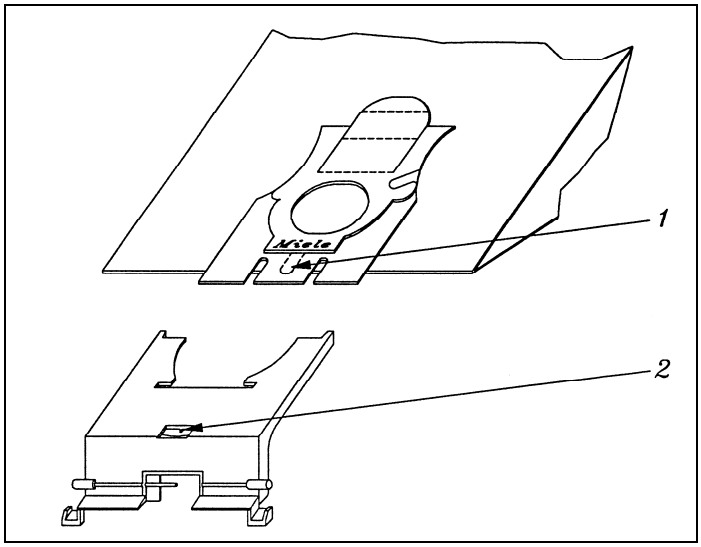


Figure 6-4: Modified Dustbag Holder, S 27x and S 28x

6.3 Poor Suction Performance (S 27x and S 28x)

Possible cause:
Motor seal (Figure 6-5, Item 1) has slipped.
Remedy:

1. Unscrew the mounting panel and install the motor seal holder (Figure 6-5, Item 2), part no. 3840800, onto the mounting panel (Figure 6-5, Item 3) from below.
2. Carry out a test run.

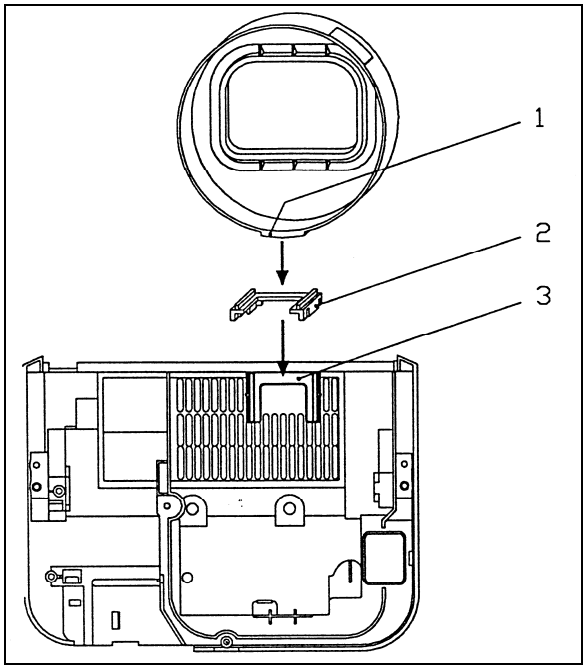


Figure 6-5: S 27x and S 28x Motor Seal and Holder

6.5 Poor Blower Performance (S 27x and S 28x)

The blower feature can be improved by installing the blower plate (Figure 6-6, Item 1), part no. 3061172.

1. Open the dust compartment lid, remove the Air Clean filter and install the blower plate with its arrow pointing to the rear panel.
2. Before closing the dustbag compartment open the accessory compartment lid.
3. Close the dustbag compartment and install the suction hose onto the blower outlet in the accessory compartment.
4. After blowing has been completed, re-install the Air Clean filter.

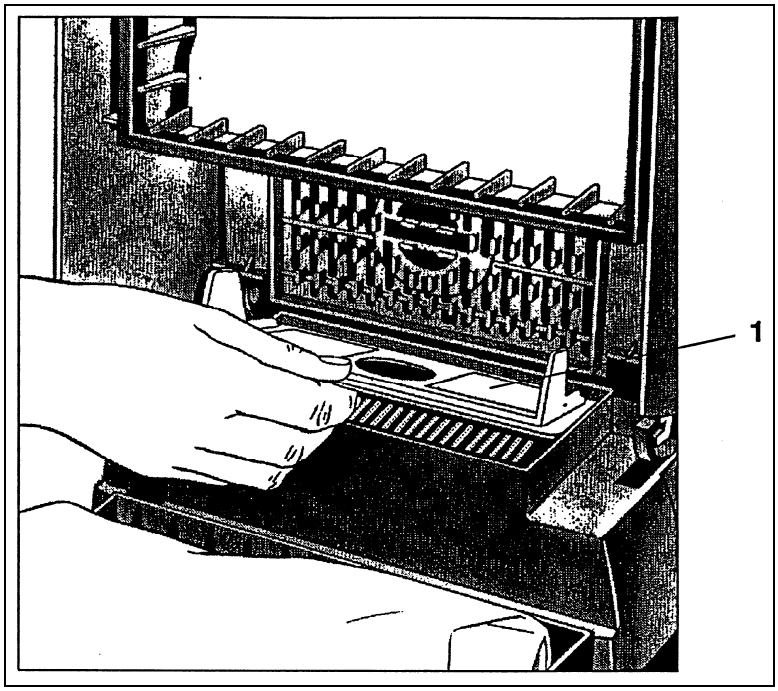


Figure 6-6: Blower Plate for S 27x and S 28x

6.6 Dustbag Change Indicator (S 3xx)

The point at which the indicator shows that the dustbag should be changed can be modified by turning the adjustment screw (Figure 6-7, Item 1) as follows:

Counterclockwise: Indication to change the dustbag occurs earlier
Clockwise: Indication to change the dustbag occurs later

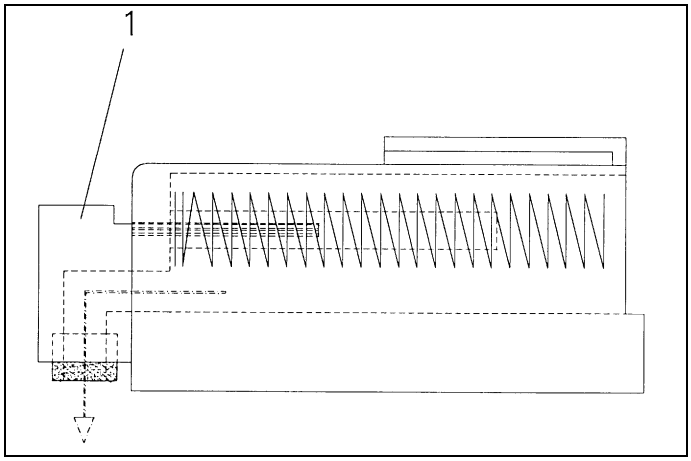


Figure 6-7: S 3xx Dustbag Change Indicator

6.7 Suction Power (S 3xx)

If the suction power is too low, the following should be carried out:

1. Set the power level to the highest setting.
2. Compare suction with and without the hose connected.
3. Check the hose, suction tube and attachment for blockages.
4. Check the dustbag is not caught between the casing pieces.
5. Check the motor protection filter and the exhaust filter.
6. Check that the seals in the motor compartment and at the exhaust filter are seated correctly and undamaged.

6.8 Motor Does Not Operate (S 345i and S 445i)

Fault:
When the brushes are worn out, the appliance cannot be switched on.

Possible cause:
When the appliance is switched on, gate 1 on triac D1 is activated.
D1 becomes conductive.
Voltage is now applied to winding L1. As the brushes are worn, the voltage is not applied to the motor but, via the mid tapping of L1, to “Control” on the EDW 445 control module.
If the gate of D1 is activated and at the same time voltage is applied to the “Control” measuring point, the electronic control module switches the appliance off; see the wiring diagram.

Remedy:
Replace the brushes.